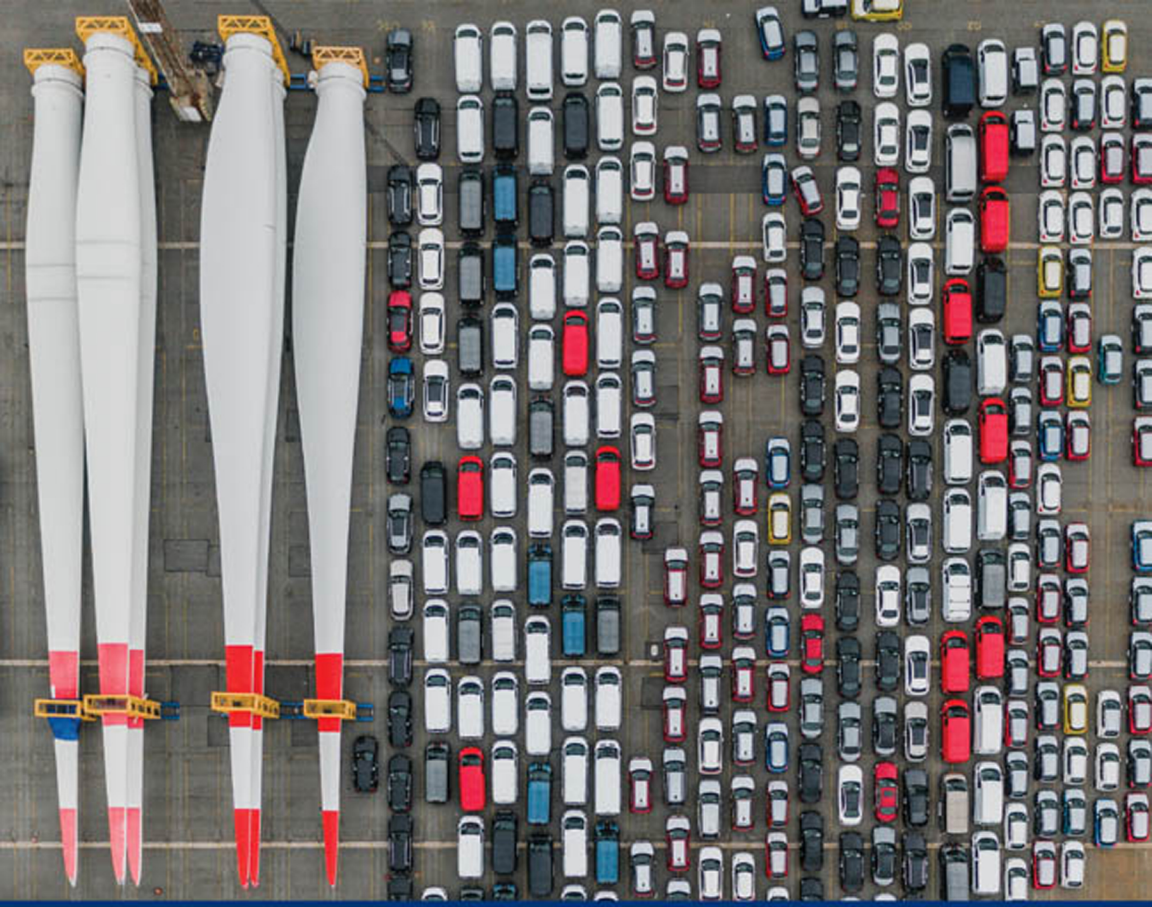

EUROPEAN OBJECTS

THE TROUBLED DREAMS OF HARMONIZATION

BRICE LAURENT

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1

THE OBJECTS OF EUROPE

OF KIPPERS AND EGG MAYONNAISE

On July 17, 2019, Boris Johnson spoke during the final husting of the British Conservative Party's leadership contest, after which he would become prime minister. To an audience used to his tricks and jokes and perhaps half-expecting them, Johnson showed a plastic-wrapped kipper. He claimed that the cost of sending kippers such as the one he produced through the post had "massively increased" because of Brussels's bureaucrats "insisting that each kipper must be accompanied by a plastic ice pillow."[1] He added that this requirement was "pointless, expensive, environmentally damaging to health and safety." Johnson's assertion proved to be yet another episode in the national drama that Brexit had become in the United Kingdom. Shortly after this speech, a spokesperson from the European Commission (EC) explained that "the case described by Mr Johnson falls outside the scope of the EU legislation and it's purely a UK national competence." She added that she was "talking about the temperature case that he was explaining."[2] The statement was carefully formulated. There are indeed many rules governing the circulation of fish products, both for safety reasons and to ensure the harmonization of the European market, but the ice pillow was not a European requirement. Yet Johnson's anecdote did resonate with the Conservative Party members who listened to him, whose laughs showed

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that they knew all too well what the kipper example was about. Johnson's point was less about the particularities of the rules determining the correct temperature range for fish products than about the pervasiveness of European regulation in everyday objects and the feeling that it could creep into everyday lives if not kept in check.

Johnson's kipper story can be paralleled with numerous tales of the absurdity of the bureaucratic state, of which European regulations are often the target. For example, in *Le retour du général*, a novel published in 2010 by French writer Benoît Duteurtre, a new European regulation prohibits restaurant owners from preparing their own traditional *oeufs mayonnaise* and compels them to use standardized mayonnaise strictly defined by painstakingly detailed standards.[3] In Duteurtre's novel, this irritating European intervention into the daily life of the narrator compels 120-year-old General Charles de Gaulle himself to come back to life to save France yet again from foreign threats. As Johnson and the Brexiters ready to use the discourse of the sovereign nation at last freed from the shackles of the European bureaucracy, the novelist here opposes the strength of national politics to the faceless European goals pursued for the sake of the market and technical expertise.

These stories capture a diffuse feeling throughout Europe, of which Brexit is currently the most visible manifestation. Their narrative structures oppose the cold power of technocratic expertise and the rich texture of people's lives. These stories are based on the confrontation between the annoying yet pervasive bureaucratic interventions pursuing abstract ends and a political domain close to people's interests and concerns. This confrontation has a distinctive ring that can be heard in many contemporary democracies including the United States, where President Donald Trump framed his attacks on expertise as a fight against the "deep state" that would pursue its own interests at the expense of everyday Americans. The narratives opposing technocracy and people's concerns function particularly well in the European Union (EU), where they insist on the technicality of the European project as it manifests itself in our everyday lives through arcane procedures. They claim that this technicality requires no less than the radical reaffirmation of national interest if not the resurgence of a mythical national figure, such as de Gaulle himself in Duteurtre's novel.

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Johnson's kipper story was false, and Duteurtre's story is a work of fiction. That narratives opposing the European bureaucracy and national concerns are often partly or entirely inaccurate is significant. Such inaccuracies can be seen as an additional sign of the indecipherability of the European regulatory system, which makes it possible for the unscrupulous politician or the skilled novelist to turn the description of this system to his or her advantage. Inaccuracies often spur a reaction from the pro-European camp consisting of contrasting the oversimplification (if not the outright deception) of these narratives of European bureaucracy with the reality of what Europe does and for what purposes. This reaction often uses the language of "populism" to dismiss critics' view of a technocratic Europe. But dismissing stories such as Johnson's kipper in an ice pillow as merely false accounts of the reality of European regulation risks missing the point. The narrators only glance over the details of the examples they use because their value, for their authors and their audiences, lies not in those details but rather in the questions they raise about the democratic (or undemocratic) nature of vast public institutions such as the EU. What is the appeal of an institution granted a constraining power to act on technical matters for objectives that appear remote from their expected beneficiaries if not in contradiction with what is meaningful to them? Should one consider that standardizing eggs and fish is the core of what Europe is currently about and as such affords no hope of grounding a collective order resembling democracy?

ACTING ON AND THROUGH OBJECTS

Over the past few years, I have conducted a series of research projects about science, democracy, and the market in European contexts where these questions were regularly raised. I studied the use of labels for policy purposes, the governance of controversial technologies such as biofuels and nanomaterials, and the anticipation of the risks caused by nuclear plants and financial institutions. In all these examples, the materiality of the objects at stake was entangled with market and policy concerns, and the debates about what to regulate and how were always about the type of a desirable Europe. To understand these debates, I had to delve into the intricacy of European regulations in relation to the technicalities of construction products, chemicals, and complex industrial facilities. Many discussions

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about these objects were characterized by oppositions between the institutions of the EU (often the EC) and those of member states, and in many respects these oppositions echoed the narrative of a confrontation between European bureaucracy and people's concerns. But a closer look revealed a more complex picture in which the numerous debates about technical objects were also about the appropriate way of defining and governing them at the European scale and ultimately about the kind of Europe that was imagined. What the narrative of bureaucracy against politics does not grasp is the high stakes of choosing this or that descriptive criterion, this or that legal approach. However, this narrative does identify the difficulty of understanding the regulation of objects as an explicitly political task worthy of collective exploration. If acting on technical objects is so prevalent, does this mean that Europe has no way of answering people's concerns? Or could one use these objects to ground a renewed European project?

This book draws on the outcomes of these research projects as well as numerous other studies conducted by scholars of European integration to explore the reasoning of European institutions as they act on objects and locate the political and economic order that this reasoning sustains. I argue that many European democratic issues can be understood by analyzing a mode of intervention based on objects. In doing so, my aim is not just to clarify how European regulation works but also to explore potential ways forward. If these narratives of European bureaucracy do not do justice to the actual practices of the EU's institutions, how do we build on what Europe knows how to do, namely acting on and through technical objects, to rethink its actions in democratic terms? Answering this question is crucial at a time of uncertainty about the future of the EU, where public debates are too often framed as expert-based technocratic approaches opposed to oversimplifying populist calls. This framing is not limited to the European scene and has become a persistent issue for contemporary democracies. It is exacerbated in Europe, where Brussels acts in ways that remain unfamiliar to the public yet can have distinctive effects. I am convinced that avoiding the opposition between expertise and populism requires extending the democratic project to new territories and forcing ourselves to rethink how this project might evolve.

This book argues that European objects are important ingredients for extending the democratic project in Europe, no less because they provide

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significant levers of policy actions that have links to collective concerns. I use the expression "European objects" to describe technical entities that are regulated by European policies. These entities comprise food products, chemicals, financial products, consumer goods, drinking water, and occupational environments. They might be market objects expected to circulate across Europe, objects described by scientific expertise because of the risks they entail or can be subjected to, or both at the same time. Objects are European not only because they are caught in the European regulatory net. They are also manifestations of long-term objectives for European integration, such as a harmonized market or an objective expertise, and as such are crucial for envisioning and perhaps rethinking what a desirable Europe might be. This, however, requires both theoretical and practical reflection about how objects could renew the European project in ways that matter to its intended beneficiaries.

FROM REGULATORY ISSUES TO EUROPEAN OBJECTS

Because they are at the core of the organization of European markets and European expertise, European objects epitomize the perceived flaws of European policies. Take, for instance, the standardization of consumer goods. The European institutions regularly face two sources of criticism: they are blamed for being entirely devoted to market considerations, allegedly at the expense of political objectives (such as common environmental or social goals), and they are seen as faceless bureaucracies, intervening in minute technical details for unclear intents. But European objects are not just problematic when in need of market harmonization. Consider European regulatory attempts at controlling hazardous substances such as endocrine disruptors. Whereas actors close to the industry would argue that attempts at excluding substances from the European market are based on a strategic instrumentalization of the precautionary principle that has little to do with scientific evidence, the recurrent inability of European institutions to convincingly withdraw problematic substances from the market has been linked to the proximity between industrial interests and European experts. In these situations, the harmonized market and expertise serve as reference points for grounding European policies. They are controversial because of what they entail in practice but are also problematic

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because of their (un)democratic consequences. They result in actions on European objects that are at the heart of what is often described as the EU's "democratic deficit."

In 1998 scholar of European integration Giandomenico Majone commented on this alleged democratic deficit, arguing that the term often points to democratic norms inspired by parliamentary or presidential democracies with which the European institutions have little to do.[4] In fact, Majone argues that the democratic deficit is the consequence of a democratic choice: that of leaving matters of sovereign power to nation-states and delegating what he calls "regulatory matters" to European institutions. He argues that Europe is better understood as a "regulatory state" for which specific democratic norms should apply, such as efficiency and the accountability of the process whereby regulation is delegated to European institutions.[5] Majone's argument about the regulatory state is important because it invites us not to be naive about democracy or to claim that there is one single democratic format expected to be replicated in Europe as in nation-states. His argument also supposes that one can relatively easily define what "efficiency" stands for and how delegation to European institutions can be legitimate, two hypotheses that seem strikingly difficult to make today.

Majone's proposition ought to be situated in the gradual development of a field of academic work devoted to regulation in European contexts and the wider evolution of policy making in Europe. The scope of European policies was gradually enlarged to new domains. This extension was punctuated by a series of treaties including the 1986 Single European Act, making "a high level of health, safety and environmental protection" an objective of European integration, and the 1992 Maastricht Treaty, formally creating the EU. This evolution has made "regulation" a key word in European institutional practice, a term that has been used to analyze processes comprising the delegation of policy to independent agencies in charge of regulating economic and technical activities, the transformation of state-owned activities in domains such as transport and energy into privately led initiatives indirectly controlled by European legal norms, and the articulation of European and national laws in governing technical risks.[6]

In Europe as elsewhere, regulation marks a transformation of public institutions that connects with wider evolutions, from new ranges of public concerns such as risks to the growing role of economic reasoning in

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the conduct of government affairs. These processes have extended the material dimension of European construction to new territories. Historians have shown that the extension of transportation and energy infrastructures has played a crucial role in making a shared European space even before European integration became an institutional matter.[7] But it is only through gradually developing European policies that objects became central components in what Andrew Barry has aptly called the "technological formation" of Europe.[8] By insisting on the material dimension of European construction, Barry's work helps us understand that regulation is less a unifying force turning social conflicts into arcane legal matters than a complex apparatus connecting economic and social actors with European objects in conflicting ways. Rather than a neat set of ordered pieces of legislation, regulation is best understood as a "regulatory machinery"[9] bringing together various types of legal constraints, material interventions on objects, and imaginations of desirable futures.

What this regulatory machinery has become today is hardly consensual. What a regulatory state does, who it benefits, and its understanding of what is "regulatory" and what should remain in the domain of national politics are all contentious matters. Twenty years after Majone's paper, the regulatory state seems highly unstable and its would-be democratic norms barely consensual, as member states are still reeling in the aftermath of the financial crisis, anti-European political parties are on the rise, and the United Kingdom has left the EU. In this context, the study of European objects offers an empirical entry point for exploring regulatory work in action and making sense of the controversies that originate from it. But the interest of European objects goes beyond that. First, European objects can be seen as the manifestation of what remains of long-term perspectives for regulation, from Jacques Delors's vision of the Single Market to Jose-Manuel Barroso's Better Regulation program seeking to optimize the recourse to the European legal norm.[10] Thus, analyzing European objects will allow us to explore what regulation has become after years of evolution that have made it a central component of the European policy world. This analysis will offer practical illustrations of how the regulatory machinery functions today and where its cogs and wheels face friction. Second, instead of the technocratic and somewhat abstract policy and legal conceptions of regulation, European objects

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are tied to collective concerns, be they consumer needs, human health, energy, or the environment. People care about the food they eat and the chemicals they are exposed to, the quality of their living environment and the access they have to affordable everyday goods, and the energy they can have access to and the future of the climate. The corresponding European objects are parts of the regulatory machinery. But as bearers of pressing collective issues, they might offer analytical and practical directions for transforming this machinery so that what is often described as a technocratic nightmare can hear and deal with public concerns.

LOCATING EUROPEAN OBJECTS

European objects are discussed in the institutional arenas through which European legislation is produced. The EC submits propositions for new European legislation to the European Council and the European Parliament, which then act as legislative bodies. The European texts and their applications may be contested before the European Court of Justice. However, discussions about European objects take place beyond these formal institutional processes. The machinery of the EC involves an intricate dynamic of internal and external consultations that is activated before any proposal is submitted. The EC functions in conjunction with numerous expert groups and consultation committees in which member state and stakeholder representatives participate.[11] Once issued, the directives and regulations often provide only general considerations, which then need to be refined. This is the case for consumer goods following the so-called New Approach, according to which European legislation provides only guidelines that are the basis for standardization undertaken at the European Committee for Standardization.[12] Expert agencies might also be in charge of implementing European legislation. For example, the European regulation of chemicals known as REACH (Registration, Evaluation and Authorization of Chemicals) tasks the Helsinki-based European Chemicals Agency (ECHA) with evaluating registration dossiers submitted by companies, which means that the ECHA is directly involved in discussions pertaining to the description of chemicals.[13] In all these instances European objects are examined with particular objectives in mind, such as organizing the Single Market, labeling products, banning hazardous

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chemicals, and defining environmental conditions for air and water. These objectives require actions undertaken for the sake of governing European objects. Such actions often imply creating entities from scratch, as labels and immaterial permits become new European objects that in many cases can also be traded. The regulatory machinery functions on a flurry of material and immaterial objects, some transformed by European policies, others created by them.

Throughout this book, I will call the set of regulatory operations undertaken on objects "European interventions."[14] The regulatory operations involve devices, such as labeling and standardization, designed to organize the European market as well as the mechanisms expected to evaluate and control risky entities. These devices are policy instruments in the sense that Pierre Lascoumes and Patrick Le Galès use. They "are not tools with perfect axiological neutrality, equally available; on the contrary, they are bearers of values, fueled by an interpretation of the social and by precise notions of the mode of regulation envisaged."[15] As such, they imply sensitive decisions likely to impact the actors involved and are explicitly discussed when regulatory categories are crafted. For example, setting standards intended to allow consumer goods to circulate on the European market implies that certain objects are included while others are excluded. Defining technical criteria for chemicals, water, and air directly impacts what companies and public administrations in member states will have to do. In turn, the arenas in which European interventions are debated are places where European objects are brought into the discussions. Consider, for instance, these questions: Should European policy label chemicals or exclude them from the European market? Should food products be protected and if so how? Should energy be considered a market object equivalent to the consumer goods expected to circulate on the European market? These questions directly impact the European interventions and the objects on which they are expected to act and demonstrate that studying European objects can be a way of analyzing the European regulation in action.

This latter consideration points to an important aspect of our study of European objects, namely that European objects matter if they are more than pure bureaucratic constructs. Accordingly, there would be little analytical value in limiting our analysis to the categories introduced in regulatory texts. Science and technology studies (STS) scholar Javier Lezaun

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spoke about the "pragmatic sanction of materials" to point to the connection between regulatory categories and material practices:

> The pragmatic sanction of materials is thus never a matter of applying a legal principle to a singular object, of fitting the abstract ideal to the mundane exemplar. Nor is it a mere attempt to embed a value—legal or otherwise—in a piece of matter. It is, rather, the manufacture of radically original legal substances, substances that allow the law to become of the world.[16]

The language might be theoretical, but what it describes is a practical problem for the actors involved and an empirical resource for us as we study would-be European objects. When regulators, company directors, and experts talk about regulatory categories, they do not seek to apply an abstract legal principle on yet another chemical or food product, nor do they seek to label an already singularized object. Rather, they attempt to craft an entity that could provide meaningful ways of regulatory action. This implies that actors need to discuss the practical dimensions of European interventions to sustain or contest the categories they argue for or against. Examining European interventions is in turn a way for us to analyze European objects. For example, I will discuss the case of energy in chapter 4, particularly the objective of unbundling the ownership and operation of energy production and distribution. This is a European intervention meant to turn energy into a European market object. While European texts often imagine desirable marketplaces for European electricity (including a new one for green electricity) where supply and demand freely meet, the fact that electrons circulate on networks in ways that cannot physically be monitored and controlled introduces a disruption in this ideal vision. This case, like many others explored in this book, illustrates the close connection between legal productions and material practices that sustains European objects. If they are to make a difference, European objects cannot remain pure discursive bureaucratic creations or entirely material constructs. They are mixed entities that associate material components in the physical sense of the term and discursive elements originating from legal sources.

PROBLEMATIZING EUROPEAN OBJECTS

Where can we look for European objects, and how do we understand their roles? There are multiple examples to choose from, including wine and

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cheese of protected geographic origin by virtue of European policies, standardized consumer goods bearing European labels such as the "CE" mark, and regulated chemicals. In fact, whole libraries of European policy scholarship could be reinterpreted as contributions to the study of European objects. I will not attempt to be exhaustive in this book. I choose selected examples related to construction products, food products, financial instruments, energy sources, and chemicals. But I am not trying to propose an exhaustive review of *all* European regulations of technical objects. Such a task would be daunting, and there is little chance that it would provide convincing elements to challenge the narrative of the meaningless bureaucratic Europe. And a mere exposé of European laws and their rationales and consequences would not be enough for us to understand why the imaginative novelist or the unscrupulous politician can so easily oppose the cold European bureaucracy and the texture of everyday life, the multiplicity of obscure administrative actions, and the simple clarity of political will. Understanding Europe's current democratic issues and envisioning potential ways forward requires a deeper analytical exploration able to identify who is supposed to benefit from the European intervention, who is involved and who is excluded, and whose concerns are addressed.

To do so, what is needed is not an exhaustive coverage of all European regulations and their links with objects but rather a selected gaze able to locate the sites where objects and the corresponding interventions raise issues of how public concerns are dealt with and ultimately what type of Europe is desirable. These sites are the places where these objects are deemed problematic because of what they are and what they entail. In other words, these are the sites in which European objects are problematized. The term "problematization," stemming from Michel Foucault's work as well as STS, points to the mechanisms whereby problems are defined and the range of acceptable solutions is made explicit.[17] Foucault used the term in his late works on the history of sexuality to point to the mechanisms whereby sex was constituted as it was turned into an object of concern. His study of problematization proposes that we shift the analytical attention away from the issue of representation. His analytical question is not "is the discourse about sex a correct representation of the reality of the human self?" but rather "what human self is imagined when sex is constituted as a problem?" Instead of asking whether or not European objects as discussed

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in the arenas outlined above correctly represent what would be "real" material entities, I ask how European objects are defined when they are constituted as topics of concern. Thus, the arenas in which I will conduct the analysis of European objects are "sites of problematization," that is, the various places where European objects and the corresponding European interventions are explicitly discussed as problems to be dealt with.[18]

Focusing the analysis on sites of problematization of European objects means that in the language of policy analysts, I am more interested in policy formulation than policy implementation. I therefore do not look at how industries deal with new regulatory constraints introduced in categories aiming to define chemicals and food products or how national public administrations adapt to European regulation.[19] But the very opposition between policy formulation and policy implementation is at odds with the study of European objects that I conduct in the following chapters. First, analyzing problematization implies that one examine how considerations related to implementation are brought into debates about formulation. Actors routinely argue for or against regulatory choices by referring to what they will entail when implemented. And the sites in which policy implementation is contested, such as the European Court of Justice, are also places where what European objects are and do is questioned. As European objects are problematized, so are the European interventions deemed appropriate. Second and more importantly, the language of formulation and implementation suggests an analytical question related to the evaluation of the discrepancy between what European policies state and what they achieve in practice. There is clear value in such a question, which is explicitly asked by many actors involved in European regulatory settings. But in studying the problematization of European objects, I focus on a different question. Rather than asking if the European regulation of European objects does what it is said it would do, I ask what problems it seeks to address and what European objects and European interventions it undertakes when doing so. This means that the politics of European objects is analyzed in particular ways.

THE POLITICS OF EUROPEAN OBJECTS

Defining European objects and acting on them implies negotiating technical criteria that have direct consequences. Defining what technical entities

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are is never a neutral process in this context, as inclusion or exclusion from a regulatory category might mean including or excluding products from the European market or extending the perimeter of action of constraining legal actions such as labeling and risk studies. It is therefore not surprising that the sites in which regulatory categories are discussed are particularly prone to lobbying as member states, companies, and other stakeholders defend their interests by anticipating the effects of future regulation.

There is a politics of making European objects in that regard related to who is involved and who benefits from certain choices. In that sense, sites in which regulatory categories are made offer an empirical lens for examining struggles between stakeholders. That these struggles happen behind closed doors is connected to the particular position of expert debates in European circles, expertise being a way for stakeholders to negotiate and for lobbying to be exercised.[20] As described through the important body of work that has examined lobbying practices connected to the making of European regulations,[21] creating European objects is a strategic game whereby the resources needed to play are unevenly distributed and particular stances regarding a category are directly connected to how the actors define their interests. In that sense, examining the elaboration of regulatory categories and analyzing debates about the appropriate European interventions will provide elements illustrating this strategic game. We find industries, nongovernmental organizations, and member states arguing for or against a particular category, in disagreement about the feasibility of an intervention, or contesting the need for regulatory action altogether. They argue in expert groups and/or through the numerous lobbying activities occurring at the EC and the European Parliament when new regulations are prepared. They may also intervene at the European Court of Justice to contest European regulation. In doing so, these actors show where their interests and values lie and attempt to shape regulatory choices to their benefit. In a sense, the study of European objects is a vehicle for exploring European negotiations in action.

But this is not the only layer of the politics of European objects, because how the problem of European objects is posed is never neutral. Consider the operations needed to define regulatory categories. Categories can be defined using thresholds, and we will see that a form of regulatory action based on thresholds is indeed regularly used in Europe (chapter 7). Making categories might also imply that several cases are examined one by

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one or that a general category is introduced. We will see in chapter 6 that when chemicals are discussed within European institutions, a frequent problem relates to the possibility of adopting a case-by-case approach whereby each substance is examined or creating large categories such as "nanomaterials" and "endocrine disruptors," thus potentially reshuffling how chemicals are controlled. Hence, certain styles of category making imply that certain objects are constituted and not others. This means that how to act on European objects is controversial in many cases. The following chapters analyze numerous conflicts about the appropriate European intervention. For instance, chapter 2 shows that the conditions under which construction products should receive European labels called "CE marks" are vehemently contested. Officials at the EC in charge of regulating construction products consider that CE marks should be granted to all construction products expected to circulate on the European market, while representatives of member states and the construction industry propose to tie them to technical characteristics that ensure their quality. Chapter 2 discusses this conflict as an opposition between the EC envisioning a unified European space of competition and national actors considering markets that should be locally embedded—propositions that are seen as disguised attempts by the EC to reintroduce trade barriers. Conflicts such as this one show that European objects can sustain various European interventions.

In many situations the very idea of acting on objects is itself problematic. Whether or not policy issues should be dealt with as a matter of making European objects is indeed a sensitive question. Protecting a food product by tying it to a regulatory category protecting geographical origin in European law implies standardizing production processes and the food product itself, which may benefit some actors over others (chapter 3). Implementing environmental policy through immaterial market entities such as permits and certificates is based on new and often unstable European objects. This implies that environmental issues are significantly rewritten so that dealing with them using quantitative mechanisms becomes possible (chapter 4).

In other terms, understanding the politics of object making requires that one analyze the consequences of defining and acting on objects in particular ways. Here, one can build on STS works that have shown that making categories is a political undertaking in a deep understanding of

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the term pertaining to the organization and meaning of everyday life.[22] The instruments needed to make categories, such as standards and labels, do more than just describe the world, possibly by reflecting existing social interests. They are also "recipes for reality," in Lawrence Busch's terms, in that they create certain technical and social identities at the expense of others, open up certain possibilities for action, and close down others.[23] Making categories is thus a sensitive matter because, as Geoffrey Bowker and Susan Leigh Star remind us, "each category valorises some point of view and silences another. This is not inherently a bad thing—indeed it is inescapable. But it *is* an ethical choice."[24]

In that sense, making categories is a coproduction bringing together ontological and normative operations.[25] Regulatory categories are particularly interesting in that regard insofar as they entangle the functioning of legal institutions with the technical interventions needed to shape technical problems. The notion of problematization allows us to analyze such coproduction processes. Problematizing implies constituting particular technical and social realities that correspond to the problems deemed important and to the range of solutions considered appropriate. Problematizing European objects also means defining them and displaying the desirable values one should pursue in acting on them. In previous works, I have shown that sites of problematization are indeed sites of coproduction: problematizing emerging technologies is also problematizing the collective organizations expected to deal with them.[26] The question to ask, then, is a broad one: For the sake of what collective order are European objects problematized?

A DREAM OF MARKET HARMONIZATION

As we focus on European objects, we will see how delegates from member states, officials at the EC, members of nongovernmental organization, and representatives of companies struggle around such questions as how to expand or limit the scope of European power and how to craft legitimate modes of government and for the benefit of whom. The answers to these questions often refer to the overall perspective of harmonization. "Harmonization" is now part of the vocabulary used within European institutions to describe the European project. It relates to the integration of the Single Market but also to the possibility of ironing out differences

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across Europe. Harmonization plays on similarity and difference as it seeks to create a space of competition whereby individuals, companies, and territories can be participants in a fair market game.[27] Thus, a "cohesion policy" is meant to "support the overall harmonious development of Member States and regions" and refers to an ideal Europe of evenly distributed economic prosperity.[28] Harmonization is inherently ambivalent. It is a promise of social harmony that might also represent the worst of a faceless bureaucracy imposing constraining regulation with little democratic oversight, to the dismay of people attached to local particularities.

Harmonization is, in the words of Andrew Barry, "an art of European government" whereby regulatory action is conducted and attempts at reducing variations across the EU are undertaken in various policy domains.[29] This art of European government should not be understood as a perfectly functioning system based on a well-oiled regulatory machinery. Rather than an already well-entrenched state of affairs, harmonization is an expected outcome of European interventions that are not always successful. Harmonization might be better described, in Sheila Jasanoff's terms, as a "sociotechnical imaginary," that is, an "imagined form of social life and social order that centers on the development and fulfilment of technological projects."[30] The language of sociotechnical imaginary is useful for analyzing harmonization because it suggests that harmonization has a dreamlike quality, that of a project not always well articulated and at best imperfectly realized by existing practices. Throughout this book, we will see that what this dream is and what it entails can be observed when analyzing European objects and their problematization. The two parts of this book correspond to two dreams of harmonization, sometimes aligned, sometimes in tension. As the following chapters show, these dreams can be identified when analyzing the sites of problematization of European objects and the connections and similarities among them.

The first dream of harmonization is also the most visible and the most clearly undertaken. This is a dream of disentanglement, which consists of envisioning European interventions as initiatives meant to ensure that European objects circulate on the European market. These initiatives envision the European market as a distinct domain of social life, expected to be distinguished from policy negotiations while being a direct outcome

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of conscious regulatory interventions. The disentanglement at stake in the European case has both an institutional and a material dimension and refers to the institutional work needed to separate the functioning of the market from policy making.[31] This disentanglement also points to the extraction of objects from their local contexts of production and use so that they become European and fit for circulation as market entities. Chapter 2 thus shows that the disentangling of European objects expected to circulate on the Single Market operates by setting boundaries. Some are expected to define objects freed from their national ties, while others are intended to isolate market standardization from negotiations deemed political. I speak of the power to disentangle to characterize the constraining interventions required to set these boundaries. The power to disentangle is an ingredient of a problematization of European objects that envisions the European citizen as an economic agent who, whether a producer or a consumer, exercises his or her choices across a European space defined as a space of competition. CE-marked consumer goods circulate in this space and are not described by anything other than the fact that they are European. Harmonization here produces an economy "without qualities," which resists attempts by member states and private organizations to introduce quality marks in lieu of or in addition to the CE mark.

There are multiple examples where European interventions seem to protect local specificities against market harmonization or attempt to constrain what economic actors do for reasons that go beyond the market, such as protecting human health. In chapter 3, I discuss European objects such as food products and cigarettes that illustrate such interventions. But these cases are counterintuitive. Rather than exceptions to the harmonization project, they are best understood as manifestations of its extension. European market objects acquire additional characteristics, such as geographic origins or health hazards. The ability of these objects to circulate on markets makes it possible for the European intervention to act on them and through them in new domains, such as rural development or health policy. Thus, chapter 3 analyzes how market harmonization has provided a legal and moral grounding to numerous European interventions and a practical way of extending European policy interventions. European objects are powerful levers of action, but they are ambivalent resources. They have direct connections with what directly

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matters to consumers or producers of quality food products or to citizens exposed to health risks. They are the vehicles through which Europe can act on these concerns. But these actions are often convoluted, as they use market harmonization as a strategic legal argument and rely on complex standardization operations. Is it possible to envision European objects providing resources to act on public concerns *and* being collectively discussed in more democratic manners? This would require rethinking the objectives and practices of disentanglement.

The case of energy is particularly useful for this reflection. Chapter 4 comments on various attempts at turning energy (and particularly green energy) into a European market object. Because they constitute flows of electricity and fuel, electrons and carbon-based molecules cannot easily be tracked or differentiated from one another. These material characteristics make energy particularly resistant to disentanglement. While this situation has actually reinforced a European commitment to harmonizing electricity and gas markets, it has also resulted in failed attempts at introducing harmonized immaterial entities carrying the green value of energy. I propose understanding these failures not as outcomes of obstacles that should be eliminated to ensure, at last, that harmonization happens but instead as signs that other imaginations of market harmonization are needed. It might be possible to relocalize political debates within the organization of markets or in the construction of their boundaries. Markets can be "concerned markets" that reconnect economic exchanges with collective concerns.[32] Whether this reconnection offers a renewed perspective for harmonization is then a question to ask. The exploration of a second and even less stable dream of harmonization will help us do that.

AN ELUSIVE DREAM OF OBJECTIVITY

The dream of disentanglement makes the market an objective and a means of European intervention and imagines that whole chunks of social life can be separated from discussions construed as political. A second dream of harmonization functions on a similar boundary. This second dream, that of objectivity, is based on science and is particularly visible when European objects are regulated because of the risks they cause or are to be protected from. These risks are evaluated by scientific methods and require

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the mobilization of expertise. Here, harmonization is not only about the market; it is also about the ability to describe European objects in scientific terms. That science can provide a universal language above local contingency is a common trope of modernity and a definite (if problematic) characteristic of liberal democracy.[33] In Europe, science is regularly summoned to settle controversies and to participate in the constitution of an objective voice to ground the legitimacy of European interventions. The second part of this book shows, however, that the dream of science-based harmonization is elusive.

Commenting on situations where technical expertise is required to shape European objects, chapter 5 discusses attempts at ensuring a European objectivity, that is, a convincing scientific evaluation of technical objects conducted by legitimate European institutions. European objectivity occupies an ambiguous position. The practice of expertise in European circles entangles the representation of various interests and the examination of technical matters. This practice points toward a form of what I call "interested objectivity," always tied to political objectives yet at odds with how European institutions often self-describe the use of science for policy making, that is, as a unique and authoritative source of knowledge devoid of political considerations. I argue that the impossibility to realize this vision is less a failure of objectivity than a failure of renarrating the dream of objective science. A way of rethinking the dream of objectivity could consist of taking interested objectivity seriously and exploring how it could answer people's concerns.

The following chapters are illustrations of the practices of interested objectivity, its articulation with the making of concerned markets, and the challenges it faces for providing legitimate paths for dealing with public concerns. Chapter 6 discusses the case of chemicals and the precautionary principle, showing that a dominant type of European intervention is a case-by-case approach that mixes technical examination and discussions about public concerns and consists of creating a new regulatory category for each new case of chemicals. Because this intervention operationalizes the precautionary principle while manipulating regulatory constraints with precaution, the chapter characterizes it with the term "regulatory precaution." Regulatory precaution is a proposition for both European objectivity and European decision making whereby the construction of

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regulatory categories is also a platform for negotiations between stakeholders. As such, regulatory precaution could rewrite the dream of objective science. But the chapter also shows that this potential alternative is not understood as such and is not grounded on enough institutional support to counterbalance pervasive asymmetries about what is regulated and who is involved in policy choices.

This ambivalent position is visible in other domains as well. Chapter 7 focuses on the European environment and on interventions designed to protect it. In many cases, turning air and water into European objects implies redefining environmental milieus by introducing thresholds. Breathable air, potable water, and the occupational environment become European objects as associations of material elements and regulatory choices defining limits for certain pollutants in ways that are far more diverse across Europe than they might seem. I contrast this approach with a mode of governing the environment *without* thresholds by introducing new market objects called "best available techniques" for limiting pollutant emissions. These examples allow me to discuss reconfigurations of objectivity and disentanglement. The establishment of thresholds is less a matter of claiming that a European decision is objective than of setting up modalities of action that make negotiations between various social actors possible. The use of market-based instruments to govern the European environment imagines not a neatly disentangled market but rather tightly woven market operations with negotiations among stakeholders. Again, we will see that the dreams of market and science can be rewritten at the price of serious institutional work.

The last empirical chapter is about crisis, which has often been Europe's default state. Chapter 8 examines European reactions to financial and nuclear crises framed as interventions on European objects (banks and nuclear plants) based on stress tests. The chapter discusses the extension of the European ability to monitor and control these objects in ways that differ significantly. While the European Central Bank acts as a centralized body of expertise acquiring new regulatory competences to control banks, nuclear plants are tested by diverse European teams. The official narrative of these interventions is that the objective and transparent evaluation of banks and nuclear plants will ensure a renewed trust in the robustness of technical systems. What objectivity and transparency entail is then a matter of

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investigation: certain objects are constituted rather than others, and transparency implies that certain beneficiaries of European interventions are imagined and that some elements are kept opaque. As a result, the complexity of large-scale technical systems in crisis is turned into a problem of governing individual objects, such as banks seen through the investor's gaze and nuclear plants threatened by natural disasters, and wider issues related to economic and energy policy choices are kept at bay.

This last empirical chapter will lead me to develop a reflection on Europe's current crisis and the potential contribution of European objects. The crisis might well provide an opportunity for furthering European integration, particularly by using objects as policy levers. Yet the challenge is to do so by rewriting the dreams of harmonization. There are possibilities for replacing the abstract disentangled market and the would-be unique voice of science with other perspectives. In practice, European objects populate concerned markets, and their risks are governed by interested objectivity. What is needed is a constitutional reflection, which can provide theoretical and institutional support to these practices and eventually make European objects matter for the publics who live with them.

WHOSE DREAMS OF HARMONIZATION?

The overall perspectives for harmonization are not always formulated in explicit terms, even less so when they do not adopt the language of the neatly disentangled market or that of universal science. It is the task of the analyst to connect discourses and policy instruments and their practical uses in order to make these perspectives for harmonization visible. This is what the following chapters will undertake by examining European interventions on objects and the debates and conflicts they have raised. The EC and its associated bodies will be the main protagonists in these explorations. In many respects, the dreams of harmonization indeed originate from the EC. This directly raises the issue of who participates and who benefits from the European interventions based on objects. If harmonization is conducted through objects crafted in Brussels's arcane procedures, then what about Europe's human subjects?

An important literature in political science and European studies has examined this question by studying phenomena occurring far from Brussels

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politics. Thus, scholars of European "socialization" have sought to shift analytical attention away from the discourse of European institutions in order to study the construction of a would-be European society.[34] Neil Fligstein's analysis of the de facto and unequal integration through economic exchanges and the circulations of people and ideas shows that the stated objective of integration faces a fractured reality of actual integration, happening in connection with but not necessarily as a direct consequence of European regulation.[35] This book adopts a perspective that differs from these contributions and contends that any intervention on European objects is also about human subjects as expected beneficiaries. This hypothesis builds on STS not only about technical objects and their scripted users[36] but also about how policy programs imagine various subjects.[37] Thus, when European objects are standardized for circulation on a market expected to be neatly disentangled, the intended beneficiary of European interventions is an economic agent defined by one's ability to choose consumer goods. When European objects are problematized as technical entities in need of objective evaluation, the imagined European subject is an individual ready to trust experts to deliver technical assessments. By directing attention to the joint production of regulatory categories and desirable collective orders, STS suggests that we connect the reflection about objects with an interrogation about human subjects. When looking at European objects, this means that we need to bring together two streams of STS, one related to the construction of markets and the other to democratic ordering in relation to technology.[38]

The important question, then, is what about the subjects that are left out? The literature in political science and European studies provides resources on this point. By examining the social characteristics of the European officials, the trajectories of European experts,[39] the role of commissioners and their relationships with other European actors and national stakeholders,[40] and the influence of policy networks and their interactions with the making and implementation of EU policies,[41] these works display the social identities of the participants in European policy making and demonstrate that certain actors are more powerful than others in shaping decisions. These approaches have spurred a trend in European studies that seek to uncover relationships between certain positions

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of social actors and decisions taken at the European level. Some have spoken of a "political sociology of Europe" to describe an analytical approach that empirically accounts for the relationships between social groups and European decision making.[42] The proponents of this approach are often critical of another trend in European studies labeled as "constructivist," which seeks to identify broad cultural or discursive influences behind European decisions.[43] In turn, scholars from the constructivist side have refined their studies of the articulation between "state, society and the individual,"[44] and others have attempted to show that the influence of "representations," "ideas," or "discourse"[45] can be (and have been) complemented by analysis of "how actors use ideas strategically."[46]

What I take from these scholarly debates at this point is an invitation to analyze exclusion effects related to the types of problems being discussed and the European subject in the name of who European interventions are conducted for and who can benefit from them. In the following chapters, I undertake this analysis not by focusing on a particular group of actors or by exploring causal relationships between social or cultural factors and European decisions but instead by showing that conflicts about European objects are also conflicts about who the European subject is and ought to be. We will see that the tensions that emerge from European interventions targeting objects, of which the narrative of the European bureaucracy is an illustration, are also about the desirable European polity. This reveals the difficulty in imagining European publics in other terms than the economic agents acting on the harmonized market or the trustful individual delegating technical issues to experts. Some of the European interventions we will encounter have had to take the particularities of objects into account, such as the uncertain risks of chemicals and the material characteristics of energy flows. In doing so, they reinvent the practice of harmonization by mixing together the organization of markets, the conduct of technical expertise, and negotiations between various actors. As such, they might offer perspectives for redefining the identity of the European political subject. As we explore these perspectives, we will also need to analyze the constraints these potential alternatives face and at what costs other European political subjects could be envisioned.

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SEEING AND ACTING THROUGH OBJECTS

When European institutions see complex issues through the lens of objects, they inevitably narrow their vision as they acquire abilities to intervene. James Scott's words come to mind here:

> Certain forms of knowledge and control require a narrowing of vision. The great advantage of such tunnel vision is that it brings into sharp focus certain limited aspects of an otherwise far more complex and unwieldy reality. This very simplification, in turn, makes the phenomenon at the center of the field of vision more legible and hence more susceptible to careful measurement and calculation. Combined with similar observations, an overall, aggregate, synoptic view of a selective reality is achieved, making possible a high degree of schematic knowledge, control, and manipulation.[47]

Defining and acting on European objects is "a form of knowledge and control" that is undertaken at the European level and makes it possible to envision European interventions while necessarily reducing complex issues to matters related to objects. This is meant to be a vehicle for pursuing the long-term objectives of disentanglement and objectivity even if in practice it gives rise to more complex constructs.

The above quote is also a forceful reminder of what the perspective advocated here entails. It could, after all, be applied to this very book. We need to ask what we don't see when we look at objects. The previous considerations lead me to consider that we can actually see a lot. But this analysis does not capture *all* the forms of European policy action. Regional development, justice, and external affairs have become domains of European intervention that do not directly relate to technical objects. Approaches to harmonization such as the open method of coordination propose using instruments such as benchmarks or self-reporting to ensure that member states voluntarily converge toward common policy goals (such as R&D and social spending).[48] As these examples show, there are European interventions that do not target objects. They are not the primary focus of this book, but we will see that some of them are transformed when European objects are introduced—for instance, the protection of food products that is hoped to become an engine for rural development and the reorganization of the Common Agricultural Policy (see chapter 3).

More generally, the fact that there are other types of European intervention than those based on objects should direct our interest toward

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a wider question: what does it take to turn public issues into a problem of European objects? In the following chapters, we will encounter conflicts relating to the very fact that complex policy issues should be dealt with by making European objects instead of adopting other approaches. For instance, I analyze the European responses to contemporary crises (chapter 8) and to sustainability issues (chapter 7) and show that these responses were based on the making of new European objects or on the redefinition of existing ones. This happened much to the dismay of proponents of a general overhaul of the European approach to industrial, environmental, or economic policies. But objects also offered a path for action at the European level that no other regulatory approaches could have provided.

Scott's words in the quote above apply well to scientific practices, where the reduction of complexity also provides means for vision and action.[49] In policy contexts, the means for vision and action granted by regulatory interventions based on objects might not be as powerful. But still, if seeing and acting through objects eliminates alternative views of the world, it also provides the European institutions with a lever of action. If turning large-scale policy issues into problems of object making is such a lever (and we will see that this the case), then we can ask whether this lever is always associated with the dreams of disentanglement and objectivity. If not, can it provide resources for a renewed European project?

Thus, if European objects necessarily imply a "narrowing of vision" for both the European institutions acting on them and the analyst studying them, they also make it possible for the European actors to envision a wide range of policy interventions and for the analyst to examine the challenges that European harmonization faces. European objects can then appear as entry points for a reflection about Europe that cuts across various policy fields. Whether this reflection can take the format of yet another theory of Europe is debatable. The field of European studies is crisscrossed by pervasive references to theories of integration, and scholars in the domain often engage in theoretical elaboration and metadiscourses about what theories are and what they entail.[50] These theories have evolved alongside European construction and in many respects contributed to shaping it.[51] Such theories have proposed various analytical frameworks through which the regulatory choices made by European

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institutions, if not the whole dynamics of European integration, can be explained.[52] The study of the problematization of European objects does not concern itself with the elucidation of causal relationships, even less so with the elaboration of explanatory models that could circulate from one case study to the next. In that sense, problematization is not a theory but does point to a series of empirical sites where the modalities of European interventions and the sources of their legitimacy are questioned. As such, problematization offers a path for the study of how Europe is governed in ways that examine the practical functioning of its institutions and how they imagine their beneficiaries and their priorities. Thus, the study of European objects is a proposition for understanding the current challenges that the EU faces and possibly a vehicle for reimagining its future evolutions.

In Europe, harmonization is a promise of social harmony, of peaceful integration, thanks to science and the market. Present in the most explicit ways in the European project, this promise has been a part of the public life of liberal democracy more generally. Liberal democracies have developed complex regulatory machineries, and current challenges, from climate change to the COVID-19 crisis, have only increased the number and complexity of the technical objects these machineries target, fueling new controversies and reactions such as Boris Johnson's calculated rejection of an expertise framed as technocratic. Trying to make the corresponding regulatory interventions more legitimate or at least palatable to suspicious publics by appealing to the universal dreams of science and the market is always at risk of cementing the opposition between expertise and populist responses. In this context, what is needed is a reimagination of these dreams of harmonization, and we will see that European objects provide elements for starting this reflection.

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2

THE POWER TO DISENTANGLE

A SINGLE MARKET BASED ON STANDARDS

On January 27, 2020, Michel Barnier, in charge of the Brexit negotiations for the European Commission (EC), spoke in Belfast. His speech was widely commented on in the press. Barnier had "warned Britain that the bloc would 'never, never, never' compromise on the integrity of its Single Market." Here as in countless other public interventions, Barnier described the Single Market as "the bloc's most valuable asset."[1] In doing so, he echoed the official language of the European institutions, which see the Single Market as "one of the EU's [European Union] greatest achievements"[2] and explains that it "refers to the EU as one territory without any internal borders or other regulatory obstacles to the free movement of goods and services."[3]

The Single Market was the great European project of the 1980s. It was a response to a difficult situation for the European project "at a time when the issue of whether or not the EU would survive was at stake."[4] This response was a continuation of the original European program of building an economic community and using market development to prevent conflicts. Following the spirit of the original European Coal and Steel Community and the European Economic Community created by the 1957 Treaty of Rome, the market was seen as a powerful means of political integration and possibly a counterweight to forces of disunity across Europe. After the initial European project had driven away the perspective of armed conflict, the

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Single Market would offer a path for getting rid of the numerous disagreements in legal and bureaucratic settings about the recognition of national regulatory choices. The challenge was to make sure that consumer products such as food products, construction materials, and children's toys produced in one member state could be bought in another one without national regulators questioning their regulatory compatibility. European standards were the solution. They would ensure that harmonized market objects circulate across Europe without costly regulatory checks. As Andrew Barry explains, they became crucial tools in "the technological formation" of Europe in that they participated in the construction of "technological zone[s]" characterized by harmonized norms.[5] In technological zones, standards ensure that objects are extracted from their sites of production and circulate as identifiable entities. As Michel Callon explains, by qualifying goods with reference to norms, standardization "dissociates them from the agencies that are in a position to produce and trade them."[6] Once standardized, food products, construction materials, and children's toys produced in various parts of the EU can be traded without additional regulatory checks. As such, they become disentangled European objects expected to circulate within a smoothly functioning market.

In the *Birth of Biopolitics*, Michel Foucault discussed ordoliberalism as a mode of governmental action on markets that implies that competition is the source of legitimacy and that the market is the outcome of active governmental intervention.[7] Foucault explicitly connected ordoliberalism with the early days of European construction. Like West Germany in the postwar world, the European project was "ordoliberal" in that it grounded its legitimacy in the ability of public institutions to ensure that a competitive market was organized.[8] The early days of European construction made the organization of a common market the central objective of the newly founded European institutions, and European scholars have spoken of the "economic constitution" of Europe, which, albeit unwritten, defines the raison d'être of the European institutions' ability to organize competitive markets.[9] The Single Market extended this project to objects, as standards provided instruments whereby the discrepancy between national regulatory choices could be ironed out, and European institutions were in charge of organizing the harmonized market.

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This, of course, is the vision of an ideal market, dreamt as a smoothly functioning space of fluid economic exchanges never hindered by regulatory conflicts or lengthy negotiations about what is appropriate in what place. This dream faces constant challenges. Barry explains that technological zones "demand regeneration, adjustment and reconfiguration" and "frequent maintenance work."[10] These are costly interventions. We will encounter many examples throughout the book, but recent scandals such as the so-called dieselgate, caused by an unscrupulous car manufacturer who deliberately tampered with emission testing, show that the promise of control through standards is not always fulfilled if only because it requires numerous controls that are often delegated to private actors. And even when delegated, the production of standards and their control rely on constraining interventions.

The Brexit debates showed that these interventions are contentious. Standards were repeatedly described by Brexiters as signs of the European bureaucracy they wanted to get rid of. In turn, Barnier repeatedly argued that exiting the Single Market meant introducing checks to make sure its "integrity" was not threatened by nonstandardized objects. These debates invite us to theorize the kind of desirable collective order that is associated with the Single Market as it attempts to constitute technological zones and the kind of power it relies on. I will explore several examples throughout the book. I start the reflection in this chapter by examining the main domain of activities at the European Committee for Standardization (CEN), in charge of European standard setting, that is, construction products. Construction products gather a wide range of objects comprising materials such as tile, cement, bricks, and more complex insulation devices. These mundane objects, only rarely discussed in public, are interesting in many regards. They are standardized in Europe through CE marking, which, materialized by a (standardized) logo that indicates conformity with European norms, is often described as a "passport" for consumer products to circulate on the European market (figure 2.1).

CE marking is a prime illustration of how the Single Market works and the kind of interventions that it relies on. This chapter characterizes them as manifestations of what I call the "power to disentangle." I use this phrase to point to a dual task: extracting local objects and turning them

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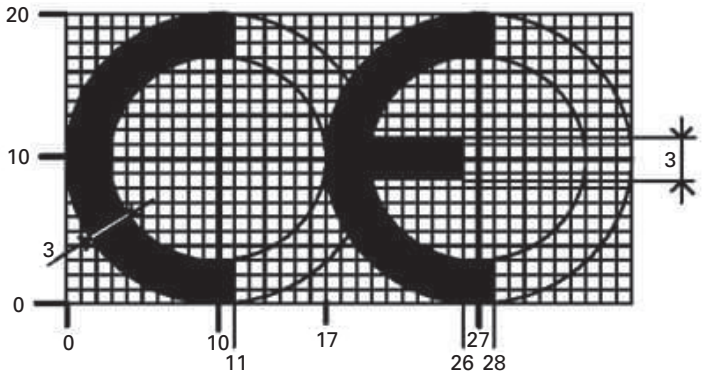

2.1 The standardized CE logo.

into standardized entities and making a market that can function without being hindered by debates and negotiations construed as "political."

A STORY OF CONFLICTS

In 2013 and 2014, I participated in a research project about labeling in the construction sector. Colleagues and I looked at how labels that are used to characterize construction products according to certain characteristics, such as geographical origins, aesthetics, safety, and sustainability, serve as instruments for market making and policy making.[11] We were looking at a diverse industrial sector where global corporations produce and sell cement and glass products throughout the world and small artisanal companies only work for a local clientele who knows them by name. All these actors regularly use a flurry of labels, some related to regional specificities, others to particular technical characteristics. In this complex landscape, the European dimension was always present and was not often referred to in a positive manner. One of the first people we met worked for a French public certification body. He had been involved in standardization activities at the CEN. He explained to us that the EC saw the CE mark as the main label for construction products, as it demonstrated that these products followed the harmonized European norms produced by the CEN. For him, the EC "wanted to see nothing but CE marking" and was "at war with national quality marks."[12] As I met other people in private companies and national public administrations, I kept hearing stories of

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confrontation, often illustrated with a colorful vocabulary about the "ideology" of the EC and its reluctance to accept that labels other than the CE mark could be used on construction products.

Later in the project I witnessed this alleged intransigence firsthand when I met Henrik,[13] who was in charge of construction products at D. G. Growth of the EC. A trained legal scholar from Finland and, in his own words, a person who had "lived with the Construction Product Regulation for years," Henrik was familiar with the oppositions that construction product labels had been raising. Before our meeting, I had explained to him that I wanted to understand why the CE mark was so important for the EC. He came to our meeting, in a conference rooms of one of the buildings of the various directorate-generals scattered across Brussels, carrying several binders. Each of them documented a court case at the European Court of Justice, and he started to talk about them even before I asked my first questions. In the most recent one, Germany had lost to the EC as it attempted to request that companies use a national mark to operate in the country.[14] For Henrik, this case was typical. He pointed out to me a French legal term used by the European Court of Justice to ground its recent decision against Germany: the *effet utile* (effectiveness) of the European regulation required that Germany dismantle the connections it had built between its national marks and the ability of companies to compete on the German market. Allowing Germany to use a national mark in this way would contravene the overall objective of the whole European approach to standards, that is, its *effet utile*, namely harmonization. Henrik believed that these legal precedents unquestionably established the primacy of CE marking. He considered that the court had upheld the ability of the EC to impose the CE mark against the will of member states seeking to promote national standards. Henrik saw these national marks as de facto trade barriers for the (possibly deliberate) goal of defending national companies.

The court case against Germany was just one among many others. In Henrik's account, the case illustrated a conflict between the EC's objective of lowering trade barriers and member states eager to protect their national companies by requiring overly specific labels. This reading is an obvious part of the story and a usual trope of the globalization debate. But reading the situation as an opposition between the EC's market ideology

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and member states' fight for political sovereignty should not prevent us from theorizing the type of market and the type of sovereign action that the actors involved imagine and attempt to achieve.[15] As the following sections demonstrate, the EC articulates its support for the European market with an understanding of its acceptable political interventions. In turn, the reaction of member states feeling deprived of their sovereignty goes with nationally located public support for economic actors and/or an idea of an efficient market. Accordingly, one needs to account for the type of political and economic ordering at stake in European interventions on markets—and indeed for the recomposition of the very definitions of such notions as "sovereignty" and "economic efficiency." This is necessary if we are to understand the kind of European power that turns construction products into CE-marked market objects and the desirable social order it relies on. To do so, we need to delve deeper into the regulatory machinery that produces the CE mark.

AN ECONOMY WITHOUT QUALITIES

Construction products are regulated in Europe by the Construction Product Regulation (CPR). The CPR lists "basic requirements" related to the whole building (and not the construction products themselves), such as "mechanical resistance and stability, safety in case of fire, hygiene, health and the environment, safety and accessibility in use, protection against noise, energy economy and heat retention, sustainable use of natural resources."[16]

These basic requirements are then completed by more detailed standards, when products are covered by a "harmonized European norm" developed by experts from private companies in the technical committees of the CEN.[17]

The CPR was adopted in 2011 and replaced a previous construction product directive. The CPR made it mandatory to follow harmonized norms when they exist but also changed the way of writing standards. Immediately after having explained to me how member states had repeatedly lost the court cases where they tried to impose their own labels over the CE mark, Henrik told me about another example. He wanted me to understand that there were good and bad ways of writing standards. He illustrated the bad way with a harmonized European norm for cement

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that the EC had recently refused to validate. This norm listed characteristics related to specific uses, each corresponding to one or several products of the major European companies producing cement. Henrik explained that this norm listed "the thirty types that correspond to national cement compositions and to what companies do." The would-be standard listed for each of these types the expected uses, each of which corresponded to the market offer of the company producing it. Henrik saw this standard as the solidified description of what the group of major companies produced, thereby making it impossible for other firms to enter the market and denying the European consumer freedom of choice.

By contrast, Henrik told me that the appropriate way of writing standards was to follow the requirements of the CPR and limit the standard to the list of "essential characteristics" of the products, such as "weldability" or "reaction to fire." Well versed in the philosophy of the CPR, Henrik explained what remains buried in the many pages of the lengthy piece of legislation: at the heart of the system was the disconnect between the "essential characteristics" of any construction product and the variety of its situations of use. The former are defined in the European norms produced at the CEN. These standards are intended not to determine the use of the construction product but instead to provide a "passport for circulation on the European market." Once this passport has been granted, producers are then asked to draw up a Declaration of Performance (DoP), which is added to the product packaging and may differ between two products covered by the same CE mark. All considerations related to "use," "applications," and "use instructions" are included in the DoP and are written by the producer specifically for the individual product, while the standard itself is reserved for the product's essential characteristics. It is then up to consumers to read the DoP in all its minute details and choose the product that best suits their needs.

The hypothesis here is that it is possible to describe the technical "essence" of a construction product in a European standard independent from its future use in a building. To understand the logic of this separation we can go back to Henrik's counterexample, a standard that entangled the description of cement with various situations of use, each corresponding to the market share of a major industrial actor. Instead, identifying essential characteristics is about separating the product from

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its ties to the particularities of its sites of production to prevent what the EC understands as barriers to trade. In this process, the standardized product is supposed to be defined independently of the economic interests obviously present when companies put construction products on the market or possibly tacit when member states tend to protect national firms by supporting particular types and uses of products.

But critics of the EC questioned the possibility of separating "essential characteristics" from situations of use. A month after my meeting with Henrik I talked with Robert,[18] who had been head of the organization in charge of granting CE marking to innovative construction products.[19] Robert saw many issues in attempting to distinguish between the characteristics of products and their uses. He used several examples to illustrate what was for him the issue with harmonized norms:

> Let me take an example: you won't use the same dowel depending on the concrete you want to put it in. Everything has to be configured according to use. And if you're not considering its use in the particular concrete you envision, then you can't characterize the dowel. . . . There's a whole set of how and why that determines the performance of a given product in a given building. But the Commission says no![20]

Robert then produced a slideshow he had presented at a standardization conference. His presentation used a mock example but one he considered representative: an innovative triangular window expected to fit into traditional square holes. How could one possibly, he asked me as he had his colleagues a few months earlier, define the "essential characteristics" of the innovative window without at the same time describing the type of building it was supposed to be included in? Or, to rephrase this question in the analytical terms introduced above, how is it possible to disentangle this construction product from its particular use?

Robert considered that the disentanglement envisioned by the CPR was illusory. But as Henrik had made it clear as soon as I met him, the CPR was necessary to turn the European market into a harmonized space of competition. In this ideal competition space, producers of the same material follow the same harmonized standard and differentiate their own in product-specific declarations of performance, and consumers choose within the range of CE-marked materials the product suitable to their needs. These "producers" and "consumers" are of course imagined, and whether or not

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they exist is contentious. The critics of the European approach I met regularly questioned the ability of consumers to even understand the detailed DoP. Robert had advised me to speak to Romain,[21] who was at the time deputy head of the construction product bureau at the French Ministry of Ecology and another skeptic of the European CPR, and I met him shortly afterward. Whereas Henrik saw an ideal space of competition made up of all producers able to put CE-marked products on the market and consumers who were free to choose from them according to their needs, Romain insisted on the importance of "experience" in market practices in the construction sector. For him, it was the experience of knowing products in relation to specific use that allowed producers to characterize their materials and consumers to choose them. Construction companies would sell bricks for a type of building or concrete for either decorative or foundation use. The small companies or individual consumers buying them would be familiar with sellers they know or would trust a label because they knew from experience that it corresponded with their needs.

These experience-based markets do not correspond with the ideal market that Henrik described to me. They might use standards but not as tools for disentangling essential characteristics from situations of use. Rather, Romain mentioned standards that could be associated with labels such as "traditional tile of southern France" or "aluminum window." For Henrik, these standards would have been unorthodox if not entirely anathema because they delineated markets where "essential characteristics" and uses were not separated but instead were associated according to particular concerns, such as the aesthetics of southern France roofs or the concern for energy efficiency, that determined the quality of products. In Romain's experience-based markets, producers and consumers are not calculating individuals in an ideal space of competition, but the economic interest of the former and the needs of the latter gradually adjust with each other. Standards do not describe essential construction products independent of usage considerations but instead translate these interests and needs into qualities that ensure product specificity. Economic sociologists have spoken about "the economy of qualities" to describe such gradual association between producers, consumers, and market objects themselves.[22] The economy of qualities could not be more different from the ideal market that the CPR imagines. CE marking is a tool for turning

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construction products into economic goods never qualified according to use, "without qualities," and meaningful only for the consumers able to decipher what product to use in their particular situation with the help of the DoP. The ideal space of competition made of CE-marked construction products is best described an economy without qualities.

A DISENTANGLED POLITY

For all its critics, the economy without quality imagined by the CPR is an objective that has to be enforced. This requires particular institutional strength, as the CEN is asked to write harmonized standards in what Henrik described as "the good way," that is, as a description of the essential characteristics of products. Defining the essential characteristics of a product requires a minimal agreement on what the product should be and how it should behave. This is the role of mandates, issued by the EC after negotiations with member states, and is meant to serve as a basis for standardizers to write harmonized norms. What does the distinction between what is part of the mandate and what is left for standardizers to decide entail? We will see that this distinction has institutional consequences and is related to a project of isolating the realm of market exchanges from considerations considered political.

Officials at the CEN and in industry organizations all consider that mandates are notoriously complicated to write. The process is highly formalized and is described at length in a document called the *Vademecum on European Standardization*, which was released in 2015 at the request of the European Parliament.[23] Two of the issues raised by the European Parliament were singled out in the *Vademecum*:

> The European Parliament, . . .
>
> 15. . . . stresses that the European legislator must be highly vigilant and precise when defining the essential requirements in regulation, while the Commission must clearly and accurately define the objectives of the standardisation work in the mandates; stresses that the role of standardisers should be limited to defining the technical means of reaching the goals set by the legislator as well as ensuring a high level of protection; . . .
>
> 22. Calls on the Commission to revise and rationalise the process to deliver standardisation mandates to European Standardisation Organisations, so as to include a consultation phase with relevant stakeholders and a thorough analysis

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that justifies the need for new standard-setting activity, in order to ensure the relevance of standard-setting and avoid duplication and the proliferation of divergent standards and specifications.[24]

These two points target a crucial distinction at play in the European standardization processes between "political" and "technical" phases. As the *Vademecum* states, "all political choices are to be made by the legislator."[25] The legislator (as clarified later in this document) is the European Council and the European Parliament. This does not mean that only the legislator is involved in the political phase of standardization. In fact, the EC is the main player insofar as it submits a written request for a standard (i.e., a mandate), following the regulation. And this is why it is so important that the EC "include a consultation phase with relevant stakeholders"—that is, member states and private actors—since the mandate needs to include their particular requests in the future standard. It is only then that the technical phase of standard writing, in which private actors are engaged, can start.

What follows from these considerations is a two-step process in the organization of the European intervention on the internal market for construction products (and in standardization more generally). First, mandates are produced through negotiations deemed *political*. Second, construction products are standardized through descriptions meant to be *technical*. Consequently, the EC, in charge of maintaining the stability of this system, has more to do than disentangling construction products from their conditions of production and use. Part of its task is also to identify what should be considered worthy of discussion during the writing of mandates and what should be considered as a political issue potentially introducing trade barriers (safety is an example of such an issue). In other words, the EC's task is to not only disentangle construction products so they become standardized European objects but also separate the political phase from the technical one in the standard-setting process.

This would-be separation directly echoes the so-called New Approach, within which the European regulatory texts define general principles that are later operationalized in technical standards. Since the 1980s, the New Approach has set out the way chosen by the European institutions for standardization processes leading to CE marking. A large part of the *Vademecum* quoted above can be read as an additional commentary on the thirty-year-old New Approach. Commented on at length by scholars of

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the EU, the New Approach proposed a redefinition of the mode of action of the EC based on layered modes of public actions: European legal texts stating general requirements that would then be translated into technical standards crafted by private actors in standardization institutions. This mode of delegation was expected to ensure both the efficiency of the European regulatory activities and their democratic legitimacy. For theorists of the "regulatory state" that Europe would be such as Giandomenico Majone, the New Approach is representative of a measured intervention on markets, which relies on private actors and member states and on voluntary approaches more than constraining legal provisions. Majone argues that the New Approach is a key component in the redefinition of the sources of democratic intervention that Europe proposes. Based on "efficiency" rather than traditional democratic norms, it grounds the legitimacy of its action on the ability to organize the delegation to member states and private actors and to coordinate rather than constrain.[26]

The New Approach makes delegation a crucial task within the European standardization system. This approach is supposed to articulate the "political power" of the European legislator (the European Council and the European Parliament), the "regulatory power" of the EC in charge of operationalizing the whole system, and the "technical roles" of the standardization actors. These three terms, reused in the 2015 *Vademecum*, characterize a system in which delegation is understood in a specific sense:

> Therefore, in issuing a standardisation request, the Commission *does not delegate political powers* to the European Standardisation Organisations (ESOs) and their members, but recognises their specific technical roles in the process. It is the request—together with the Regulation and the relevant sectoral legislation—that describes and justifies the tasks that the public authorities assign to the ESOs. *This assignment is purely technical and is addressed to private organisations*.[27]

These considerations reveal the careful approach to the definition of what is political and what is technical. Insisting on the importance of this separation is a common trope of regulatory bodies concerned about their political legitimacy and the scientific quality of their expertise[28] or, more generally, of modern political and scientific institutions.[29] But within the European standardization system, the distinction between what is political and what is technical is less about expertise and more about market

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organization. Here, a realm of political negotiation is expected to be neatly distinguished from the domain of market organization. Organizing the market is considered a technical matter, outside of political considerations, and the legitimacy of the EC lies in its ability to distinguish between the two. This imagined institutional construct extends the original project of European integration based on economic organization and the objective of competition. It is a continuation of the ordoliberal economic constitution in that policy work is about setting the conditions for markets to function on their own. But it also extends the original economic constitution by acting on technical objects through standards. For construction products, this means that mandates belong to the realm of negotiations deemed political, and harmonized norms are only seen as technical instruments meant to reveal the essential characteristics of objects.

This ideal construct is not to be taken at face value. Science and technology studies scholars have shown that maintaining the boundary meant to purify social activities such as expertise from considerations seen as political is a daunting task that is constantly challenged.[30] While the official EU documentation sees standardization as "purely technical" (as in the quote above), scholars of the European standardization speak of a "*de facto* delegation of law-making powers through European standardization."[31] In the next section, I comment on an example to show that determining what constitutes the technical phase and what should be excluded from it is contentious. This example will characterize the type of constraining intervention that the EC conducts when ensuring that construction products are disentangled and that the technicalities of market organization are separated from policy considerations. We will see that these two objectives are two sides of the same coin, as isolating "essential characteristics" also means separating the decisions that can be left to standardizers from what should be discussed in arenas explicitly seen as political, primarily the European Council. This means that the term "disentanglement" can be used to point to both the definition of standardized European objects able to circulate across Europe and the delimitation of what is about the technicalities of market organization and what is a matter of political negotiations.

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THE POWER TO DISENTANGLE

The people I met at the EC regularly referred to the institutional system separating the political phase of mandate writing and the technical phase of standard setting. But in national public administration bodies and private companies and even at the CEN, the tone of the conversation was markedly different. People there would not try to lay down subtle institutional constructs and sophisticated differences between "essential characteristics" and "use" or between "political mandates" and "technical norms." Rather, they would talk about concrete examples that they saw as illustrative of the constraining power of the European institutions (mostly the EC) and what they understood as a misguided attempt to harmonize the market of construction products. One such example appeared multiple times in my conversations with actors of the construction sector. This example was a cellulose foam used for insulation and was meant to be squeezed between buildings' ceilings and roofs. Somewhat cryptically described as "in-situ formed loose fill cellulose (LFCI) thermal insulation" in the corresponding harmonized European norm, this material is probably only known by specialists in building design. As I am not one of them, I did not pay particular attention to it the first time it was mentioned. But as people I interviewed kept coming back to this mysterious cellulose foam, I started to suspect that it was interesting even for nonspecialists. Indeed, it had become the typical illustration of the issues with CE marking. As such, it is for us a perfect example of what the dream of disentangled markets entails.

The reason this cellulose foam was problematic is linked to a particular provision of the CPR, which deals with "classes and thresholds,"[32] in other words all types of categories, minimum or maximum values that can be used to describe the characteristics of construction products.[33] An official at the CEN told me that 80 percent of European norms use classes and thresholds.[34] They are indeed the most convenient way of describing the characteristics of construction products, for instance, by setting limits for water absorption or defining classes of resistance to fire. The CPR says that changes related to classes and thresholds can be done in two ways. The first route requires rewriting the mandate, in other words getting back to the political phase of the two-step process described above.

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All the actors involved agree on the complexity of such an operation.[35] The second way of modifying classes and thresholds uses the delegated act procedure, which was introduced in the 2007 Lisbon Treaty. The delegated act "grants extra power to the European Commission for the sake of speed and efficiency."[36] This "extra power" is granted by the European Council and the European Parliament, which then engage in "extra control in return."[37] In practice, the delegated act has to be adopted by the two legislating bodies—thereby joining the efficiency argument with a democratic expectation. The adoption is done through a yes/no vote, thus leaving the technical wording of the delegated act to the EC.

A delegated act was exactly what was used when writing the standard for the (in)famous cellulose foam. The EC proposed a delegated act in the spring of 2015 as a reaction to the attempt of the CEN to introduce classes of performance. This draft delegated act states that the performance of the product depends on two essential characteristics, namely "settlement for horizontal applications, lofts and floors" and "short-term water absorption." The second criterion has been the most controversial and relates to the level of absorption of humidity. The technical language should not obscure the practical consequences. As a member of a technical committee explained, "If there are leaks, the product can't absorb too much water otherwise it's a sponge. And the sponge will eventually circulate the water beneath the ceiling, or could even make the ceiling break. At any case, it creates pathologies, so you'd better avoid this."[38]

To account for the fact that too high a level of water absorption would result in "pathologies," the standardization committee proposed two classes for evaluating the performance of this characteristic and an upper limit for water absorption, after which the product could not be granted the CE mark. Yet the EC requested an additional class so that products that would not meet the lowest threshold would still fall under the harmonized standard. This is explained in the following terms in the draft delegated act:

> The second classification, concerning short-term water absorption, relates to the customary intended use circumstances for cellulose-based thermal insulation products. These are not expected to be used where subject to water penetration. However, and *to avoid the establishment of a hidden threshold level for this performance, the classification needs to remain open-ended*. This is to be achieved by

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adding one upper class to the classification included in the standard EN 15101-1 as adopted by CEN in September 2013.[39]

In the delegated act this resulted in a new class, said to be "open" because it did not define an upper limit for water absorption. The representative of a major French construction product company in the European federation of the sector described the episode as such: "So the Commission said 'no, you need to open the class.' And it's up to the consumers to know. . . . The Commission has this vision. It considers that one should not exclude certain products from the market. So if there are classes, we need to open them."[40] Another professional standardizer mentioned the very same example during an interview. He had sent me the delegated act by email beforehand. "Is a sponge still an insulation material?" was a rhetorical question he raised several times during the interview as a way of making his frustration "as a technician" explicit. His frustration is directly connected to a difference in drawing the line between technical and political issues. While he considered that setting a limit for the product not to become a sponge and playing its intended role as an insulation material was a technical issue, the draft delegated act considers that such a decision could not be left to technical committees to decide on. In the eyes of the EC, this choice is not technical but instead is political, and is so because setting an upper limit would exclude a whole category of products from the market.

This example illustrates a dual mode of intervention of the EC. First, the EC seeks to ensure that in European standards, construction products are disentangled from their economic ties and become economic goods without qualities (to the point that an insulation product can be labeled as such even if it becomes a sponge with high humidity). These disentanglement operations map onto those related to the maintenance of the boundaries separating political negotiations and the technical descriptions necessary for market organization. Thus, the delegated act for classes and thresholds appears as a legal innovation whereby the intervention of the EC is framed not only as a warden of boundaries between what should be left to standardizers and what should not but also as a provider of technical content (under the supervision, at least nominally, of the European Council and the European Parliament). This evolution is well identified by standardizers. As one of them put it during an interview,

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It's a change that is actually creating most of the problems, because most of the standards that are developing as supports of European laws are built on this concept of the New Approach. . . . The idea was that the Commission would deal with legal requirements and the generic requirements, and technical work would be addressed to the standardization. The CPR deviates a little from this approach. . . . What we are seeing more and more is that the Commission wants to get into very technical and specific aspects that shouldn't be the Commission's role.[41]

The shift of intervention by the EC through delegated acts is highly controversial.[42] For instance, Construction Product Europe, a federation of companies active in European circles, explicitly considers that "the obligation to revise the mandate or to ask for a delegated act when establishing classes is exaggerated."[43] For this organization acting as a representative of private companies, "many classes are only convenience classes" and thus should not be regarded as outside the scope of what standardizers can decide on.[44] Accordingly, Construction Product Europe explicitly lobbies the EC to limit the use of delegated acts. For some of the actors involved, it even gets to the point that some companies may decide to "kill harmonized norms," that is, deciding among private companies to stop the development of the harmonized standards. A member of a French company involved in European standardization sees this once unthinkable threat as "one of the solutions currently being considered."

Whether or not this threat will materialize matters less for our concern here than what it says of the contentious relationships between the EC and the actors of standardization, be they private companies or standardization organizations. The threat displays the constraining strength of the intervention of the EC as it aims to disentangle the essential characteristics from the particularities of products' production and use and in doing so seeks to isolate what can be left to standardizers from what is considered political. One can speak of the "power to disentangle" to characterize this intervention, which consists of defining objects by standards and maintaining institutional boundaries between the technicalities of market making and considerations seen as political.

Through the use of the delegated act, what could have been construed as a mere delegation has become a vehicle for exercising the power to disentangle. The cellulose foam example is useful for characterizing the nature and practice of the European power to disentangle. When considering European standards, the EC identifies choices that could be matters for

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political negotiations (e.g., deciding that "a sponge" cannot ensure insulation). The EC can then either restart the whole process by launching negotiations prior to the writing of a new mandate (a long and costly procedure) or, thanks to the delegated act, intervene to ensure the disentanglement of construction products from economic and political interests. This approach relies on a form of intervention of the EC that is more than a shift in the amount of latitude granted to member states or the European institutions and is a redefinition of the very nature of European public action. On the one hand, by reestablishing the boundary between what is technical (and should be done by standardization organizations and private actors) and what is political (and should be done through political negotiations at the stage of the negotiation of mandates), the EC follows the path opened by the New Approach, which seeks to limit the intervention of the European public administration. Yet on the other hand, the EC is granted the possibility to reintervene in the process of standard setting, including in its technicalities, in order to ensure that construction products are properly disentangled and turned into economic goods without qualities.

WHAT DISENTANGLING ENTAILS

There are historical and sociological accounts of the complex alliances of interest that were needed to build the Single Market.[45] The case of construction products has helped us understand that another aspect is crucial in the organization of the Single Market, namely the interventions on objects through standards. The making of European objects standardized by virtue of the CE mark and expected to circulate within a harmonized market is based on the dual disentanglement of European objects from their local ties, on the one hand, and of policy negotiations and the technicalities of market organization, on the other. Maintaining these disentanglements requires an active intervention of the EC, as does conducting the supposedly technical operations at the heart of standard making.

The legitimacy of the EC's intervention is supposed to lie in the ability to regulate a harmonized internal market and play a central part in a collective ordering based on harmonization. The intervention's main means of action is the separation of considerations deemed political from the technicalities of market organizations. Political interests are legitimate

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but are to be confined to certain stages, namely the negotiation and writing of European directives or regulations, or the mandates whereby the EC can ask standardizers to produce harmonized European norms. The disentanglement thereby envisioned cannot be entirely described by terms such as "delegation" or "governance," since it redefines the very nature of what is supposed to be governed (economic goods without qualities and economic and political agents expected to play their parts) and how to do so (by requiring new roles for the European institutions). Thus, the scope of delegation or governance is tightly constrained. What can be discussed are technicalities neatly separated from political choices, that is, any intervention that could be understood as erecting potential trade barriers.

The EC is then expected to ensure that boundaries are well drawn and that standards do not constitute de facto trade barriers by being entangled with the private interests of certain companies or the national interests of member states. The intervention of the EC is based on its power to disentangle. The power to disentangle requires heavy investments, including in the technical description of economic goods. This is a consistent proposition pertaining to both the source of legitimate and efficient European public action and the role of markets as contributors to the collective welfare. Accordingly, considering CE marking as a passport on the European market makes the European project a matter of building an ideally harmonized market where construction products circulate freely and consumers are cognitively well equipped to make sense of complex declarations of performance and that is sustained by institutions able to neatly distinguish between political negotiations and market organization.

The power to disentangle implies that European objects are defined by severing their local ties. That the consequences can be problematic is better understood when considering the alternatives, as they are proposed by both industries and standardizers[46] who frame the labeling of construction products (including CE marking) as a matter of quality. By signaling that certain products are adapted to particular uses—to the skills of the professionals manipulating it and/or to local geographic conditions—quality marks frame market exchanges in such a way that products are indeed disentangled from certain ties and are reentangled to others. As such and as understood by many people in private companies, standardization organizations, and national public administration offices, quality

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marks propose an approach to standardization that entangles selected market actors with the particularities of one product and requires mechanisms of collective discussion representing various interests. Quality marks are ingredients of "concerned markets"[47] in which the technicalities of market organization and the interests and concerns of the actors involved are brought together. The critics of the EC see standards as components of an "economy of qualities."[48] They consider that the phase of political negotiations and the phase devoted to the technicalities of market organization cannot be entirely disentangled. Standard setting is seen as a platform for negotiations among stakeholders.[49] They see the ideal to pursue not as a single market neatly separated from political negotiations but instead as the coexistence of various markets, differently attached to particular collective concerns or geographic places.

Disentanglement as imagined by the EC and reentanglement based on the quality of products are not incompatible programs. One could indeed envision an organization whereby CE marking would be complemented by voluntary marks used by private actors wishing to make the particularities of their products visible to their consumers. From a strictly legal standpoint, as long as voluntary marks are disconnected from national regulations and are a matter of private arrangements only, they are not incompatible with CE marking. Yet the actors involved—in private companies and standardization organizations—identify an evolution of the EC on this point toward a greater reluctance in accepting that voluntary marks exist alongside CE marking. This reluctant position sees a slippery slope toward protectionism in cases where voluntary marks would be required in public procurements or systematically demanded by insurance companies. In other words, if voluntary marks are tacit requirements for entering a national market, they might well become trade barriers to eliminate in the EC's eyes—an argument that the officials in charge of the CPR made explicit to me.[50] Faced with the looming threat of potential trade barriers, it seems that the EC chooses to assert its power to disentangle even more. Whether or not it does so in a conscious way does not matter here. More interesting is the overall project, namely a European space whereby an ideal market would function as an economy without qualities for political sakes neatly separated from the organization of markets.

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The pervasive oppositions about construction products also invite us to reflect on the (non)democratic consequences of the power to disentangle. By isolating the sphere of political negotiations and granting considerable possibilities of intervention to the EC, the organization that emerges from the CPR makes the harmonization of the internal market an EC prerogative, expected to be outside the realm of democratic activities. But trying to put politics at bay makes it reappear in other arenas. In the world of European construction products, conflicts occur in the secluded rooms of standardization committees and professional organizations. Imagining an apolitical world of standards also makes it possible for politicians to reaffirm political needs and contest the seemingly unchecked bureaucratic forces, as the Brexit debates powerfully show.

Can one then envision European objects that are tied to other goals than the disentanglement of harmonized markets? Is it possible to make European objects *with* qualities that matter for European publics? Rather than reaffirming its power to disentangle, the EC could embark on a reflection about the ways in which CE marking could coexist with quality marks. There are signs that standardized European objects can be described more sophistically than by "essential characteristics" never meant to be connected to uses, as the examples of the next chapter will show. In commenting on these examples, I will pursue the reflection about the democratic consequences of the European dream of market harmonization. We will see that making standardized market objects has been used to extend the perimeter of European policy interventions and as such offers a path for reconnecting European objects with collective concerns.

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3

EXTENDING EUROPEAN POWER

PROTECTING FROM THE MARKET OR EXTENDING THE MARKET?

After I completed my research project of construction products, I was looking for examples of different types of European regulation. I wanted to contrast the economy without quality and the power to disentangle with other approaches to European regulation, which would standardize objects for the sake of protection rather than market harmonization. I looked into a rich body of literature. Political scientists, legal scholars, and economic sociologists have written about how European legal texts protect local food products such as Parma ham and protect human health by regulating cigarettes, and I thought that their works would provide numerous examples for describing alternative modes of harmonization based on protecting from the market instead of extending the market. At that time, the critics of Brexit in the United Kingdom were often mentioning the protection that European membership ensured and the risks of seeing American hormone-fed beef and chlorinated chickens invading British store shelves after the departure from the European Union (EU). On the continent, the threat of a future "Singapore-on-Thames" undercutting competitors thanks to the lowering of environmental and social standards was regularly raised. The 1986 Single European Act indeed made "a high level of health, safety and environmental protection" an

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objective of European integration, and we know that European policies can be used to protect the consumer from products considered unsafe by excluding them altogether or introducing regulatory constraints such as nicotine tests for cigarettes. We also know that the forces of harmonization ironing out local differences are only a part of the European story, as the singularity of local products can also be protected by virtue of European interventions. Feta cheese is a famous example. Producers in Denmark and Germany were using the name and marketed their cheese as part of the Greek cultural tradition. Greece challenged them by using a European regulation that protects the geographic origin of food products.[1] The European Court of Justice eventually authorized Greece to protect feta cheese, and producers outside Greece were denied the right to use the name.[2] These examples show that European objects can have various specifications, potentially related to a wide range of concerns from public health to cultural particularities. In the words of economic sociologists,[3] they can be granted with many more *qualities* than what the CE mark example could have let us think.

But as I started reading about the protection of local food products and the regulation of cigarettes, two domains that have been abundantly studied by scholars of European integration, the picture started to be more complicated. Analysts of the European regulation of food products have shown that the impetus for protecting local geographic origins had as much if not more to do with the fight against trade problems created by national systems of protection than the mere concern for the gustative quality of Greek feta or *prosciutto di Parma*.[4] The legal arguments about the regulation of cigarettes made constant reference to market harmonization—and we will see below that this is no accident. The more I looked into various cases that seem to be exceptions from the harmonization project, the more these cases appeared as extensions of harmonization to European objects that were granted with more sophisticated qualities, such as "being local" or "being acceptable with regard to health issues." This is the story this chapter tells. I build on the wide range of academic works on food products, cigarettes, and a couple of other examples in domains such as finance and waste to explore European objects endowed with new "local" or "risk-related" qualities. We will see that these objects illustrate an extension of the European power to act through the market with

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consequences that we need to understand if we are to identify paths for reconnecting European objects with people's concerns.

HALLOUMI AND THE EUROPEAN LOCAL

The story of Greek feta is often told as a tale of successful protection, but there is another Mediterranean cheese that offers a striking contract. In Cyprus, halloumi cheese has been debated in the context of a potential protection by the European regulation of geographic origin. It was registered as a "Protected Designation of Origin" only in April 2021 after years of conflict.[5] This case has been analyzed by anthropologist Gisela Welz, and I draw on her detailed empirical study to discuss what halloumi can tell us about European market objects.[6] An application for a "protected designation of origin" within the European regulation was submitted for halloumi in 2009, but the process was far from consensual. Welz has analyzed the lengthy discussions about halloumi, a popular cheese in Cyprus and a seemingly perfect candidate for European protection of geographical origin. Debate raged between industrial dairy companies and other producers of cheese about how to produce halloumi. While the former insisted that cow milk should comprise at least half of the milk used in halloumi cheese, the latter argued that sheep and goat milk should remain the main ingredient of the cheese. Dairy cows had been introduced to Cyprus in the 1960s and since then had been used by private agroindustrial companies to make halloumi cheese. These companies saw a clear interest in using the European designation of origin to increase the price of their products sold abroad. Producers of goat and sheep milk staged demonstrations in Cyprus because they feared that a protected halloumi would imply mandatory changes in the composition of the cheese, mirroring the interests of the biggest corporations. This debate mapped onto yet another one about the ethnic identity of the country. While all inhabitants of Cyprus have traditionally produced halloumi, the application procedure for the protection of origin made it a Greek Cypriot cheese, and the Greek Cypriot media construed the European label as a protection against Turkish Cypriot producers and dairy companies from Bulgaria and Turkey. In 2012 the first attempt to get halloumi protected failed, as the Cheese Makers Association, which is dominated by large dairy companies, pulled

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its support due to the controversy about milk. Three years later, however, yet another application was mentioned in the press in the context of pervasive tensions between the two parts of the island.[7] Because halloumi is produced in both the Greek Republic of Cyprus, part of the EU, and the unrecognized Turkish Republic of Northern Cyprus, reserving the regulatory protection of the cheese to the southern producers caused yet another source of tension between the divided parts of the island.

Some scholars have spoken of "gastronationalism" to denote the entanglement of processes of food production, distribution, and consumption with nation building and challenge the reading of globalization as an inescapable unifying force.[8] Others analyze it as an "alternative geography of food," based on terroir rather than productivity criteria, and as having roots in cultural and industrial models of the southern member states.[9] The fact that France and Italy, two countries where the food sector can easily be described in those terms, are the member states with the highest number of food products whose geographic origins are protected seems to confirm this interpretation. These considerations could lead us to think of indications of origin for food products as exceptions to harmonization. Local ties are maintained instead of being ironed out under a general "passport for circulation on the European market," such as the CE mark. One could indeed speak of "gastronationalism" in the case of the Cypriot halloumi, but the term ought to point to much more complex dynamics than a reaction by nation-states to counter the unifying forces of European integration. Rather, the transformation of products into labeled "local" ones is caught in oppositions about who benefits on what markets, how the local should be defined, and how it articulates food qualification and national identities. The opposition here is not between the European harmonized market and pockets of protection of local particularities but instead is between different constructions of the local.

On the one hand, the European indications of origin frame the local as an additional quality through which standardized European objects can be described before circulation on the European market. The local is necessarily circumscribed with precision, meaning that some actors and objects are excluded. This local is not at all antithetical to the project of European integration based on the ability to construct a market. It is a disentangled local, made fit for circulation throughout Europe, and

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exists because regulatory rules are defined at the European level. This local functions within an institutional arrangement whereby policy negotiations about which food product should be protected are followed by the technicalities of market organization related, for instance, to the exact definition of production processes. Food products are not the same when they become local in this European sense. Excluding certain production processes and using cow milk were the sensitive points in the halloumi controversy. Turning cheese produced in Cyprus into a European object is not just about introducing a legal fiction that prevents potential producers from manufacturing it outside of the island. It also has consequences for the physical nature of the cheese and for the social identities of the actors involved, whether large companies hoping to extend their profits thanks to future European consumers or small artisanal producers wishing to defend a wide range of production practices. This, of course, is not specific to halloumi, and one can find numerous other examples of how the protection of origin transforms food products and who can produce them, from foie gras ducks in southwestern France reserved to certain producers in a carefully circumscribed geographical area[10] to Languedoc wine becoming a quality product markedly different from table wine.[11] In all these cases, turning food products into local European objects rearranges material and social practices.

The opposition to the European protection of halloumi cheese, on the other hand, suggests a different problematization of the local in which local products are not precisely characterized but instead are the outcome of a wide range of informal practices that are geographically situated and not meant to circulate. For artisanal producers of halloumi, the local extends beyond geopolitical boundaries and thus is not confined to a well-defined area. This stems from an informal space of practices extending across the boundary that divides Cyprus and possibly beyond this sole island to the Mediterranean area where goat and sheep milk is used, but it is not a precisely tailored descriptor that can differentiate a particular cheese from others within a Europe-wide space of competition. This is coextensive with the day-to-day techniques of producers and could not be defined independently of the variety of these techniques.

The clash between the two problematizations of the local shows that protecting food products by making them new European market objects

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is not about introducing pockets of protection against the unifying forces of European harmonization. The protection of geographic origin is better described as an extension of the Single Market to new spaces of competition where Greek feta can compete against other cheeses soaked in brine[12] and Cypriot halloumi against other Mediterranean cheeses. Understood in those terms, the protection of food products relies on a standardized local that ought to be understood as a sensitive matter of collective discussion. The case of halloumi shows that this discussion may well have exclusion effects and requires careful organization to tackle them—precisely what has been problematic in Cyprus.

MAKING EUROPEAN SUBJECTS, EXTENDING POLICY ACTIONS

The protection of halloumi was contentious because it opposed actors of very different natures and interests. Large industrial milk producers and artisanal cheese makers could not agree on the kind of techniques to use and how and where to promote the quality of their cheese. Trying to protect halloumi under the European regulation not only impacted the cheese itself but also meant turning the artisanal producers into a different kind of economic agents, able to follow detailed standards and concerned about their positions within a European market for milk products. This action on individuals points to a strength of protected food products and why they are important for European policy making. The 1992 regulation that introduced the protection of origin saw farmers and rural populations as beneficiaries of the new system: "the promotion of products having certain characteristics could be of considerable benefit to the rural economy, in particular to less-favoured or remote areas, by improving the incomes of farmers and by retaining the rural population in these areas."[13]

The concern for rural development grew in the 1990s and was rehearsed in the 1996 Cork Declaration, in which European actors made rural development a priority of European territorial policy.[14] This new priority transformed the ways in which agriculture in general and farmers in particular were expected to be governed. Instead of passive beneficiaries of the Common Agricultural Policy's subsidies, farmers would become economic agents expected to engage in more profitable activities.[15] Protecting geographic origins could then be a component of rural development

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policy in that it created new market domains, possibly profitable ones, that farmers could occupy. If the protection of local specificities is not antithetical to the logic of market harmonization, it offers additional avenues for exercising European power by acting on individuals.

The actual contribution of the protection of origin policy to rural development is still uncertain. Projects have been funded by the European Commission (EC) in order to explore the conditions for tying rural development to the qualification of local characteristics.[16] Studies have found "mixed results" particularly in situations of conflict,[17] of which the example of halloumi cheese provides a good illustration. These studies have described a wide variety of strategies adopted by the actors involved (large companies, small producers, local public bodies, etc.), each having impacts on rural development.[18] Whether they have been achieved or not, the objective of rural development and the expected contribution of the protection of origin are based on a conception of local producers as entrepreneurial agents able to extract monetary value from the local characteristics of their products, thereby contributing to the economic development of rural regions. This imagined producer is activated by European policy instead of being subsidized by it (as in the context of the original Common Agricultural Policy).

Thus, acting on local food products to make them European can be seen as integrating agricultural policy concerns into market ones. This helps to describe in more precise terms the harmonization project introduced in chapter 2 on construction products. European harmonization is not necessarily opposed to local products as long as they are made European objects characterized by their geographical origins, in other words as long as the local is disentangled. Moreover, local products are vehicles for the extension of policy action in new domains of intervention. Food products illustrate a particular dynamic whereby European objects are made for the sake of not only the European markets but also policy objectives that are wider than the sole market integration, such as rural development policy.

FROM CONSUMER PROTECTION TO MARKET HARMONIZATION

There are other domains where European interventions could be seen as attempts at protecting against market forces. Health is a prime example, and tobacco is a telling illustration. The European regulation of tobacco

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started with the 1989 directive on cigarette labeling, later amended in the 2001 and 2014 tobacco product directives. These pieces of legislation have standardized the tests that manufacturers have to implement to ensure that nicotine levels are acceptable. The tobacco directives have also targeted consumers by warning them about tobacco's health risks. The directives set the levels of harmful substances allowed and banned certain specifications. For example, the tar yield of cigarettes was progressively reduced in successive EU directives.[19] The 2001 tobacco directive prohibited descriptors such as "light" and "mild" on the grounds that these epithets may "mislead the consumer into the belief that such products are less harmful."[20] The 2014 tobacco directive then banned "characteristic flavours" as well as ten-cigarette packs.

The story of European tobacco seems to be that of an opposition between attempts at protecting consumers from health risks, by informing them and banning the most hazardous cigarettes, and resistance from an industrial sector wary of costly regulatory constraints. The European directives explicitly refer to health policy considerations. The 1989 directive's legal basis "includes the European Council meeting of June 1985, which launched a European action program against cancer[,] and the Resolution of July 1986 on a program of action of the European Communities against cancer."[21] The action against tobacco then became a central component of the European program against cancer,[22] and the successive directives all mention the objective of health protection.[23] These initiatives were resisted. The successive tobacco directives were among the most lobbied pieces of European legislation,[24] and one could easily find a pattern that is now familiar as private actors actively seek to hinder constraining regulation by using scientific uncertainty strategically.[25] One episode among many others demonstrates this pattern. During the review process of the 2014 directive, Health Commissioner John Dalli was forced to resign because of claims of industry interference.[26] The negotiations themselves significantly weakened the text. For instance, the initial version of the 2014 directive stated that warning labels were to occupy 75 percent of the packets' front. The directive also included a ban on all "characteristic flavours" and banned slim cigarettes. The final directive eventually stated that 65 percent of the packaging's surface would be used for a health warning. It introduced a four-year derogation for menthol cigarettes and excluded the ban on slim cigarettes.[27]

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The opposition between the forces of regulation and the economic interest of private actors is a crucial lens for understanding the dynamics at play. But it is only one part of the story, which risks obscuring the fact that the regulation of European tobacco has much to do with market concerns. For once, the objective of health in the European texts is not the only one and is always associated with the perspectives of market harmonization. For instance, the 2001 directive stated that there were "still substantial differences between the Member States' laws . . . on the manufacture, presentation, and sale of tobacco products which impede the functioning of the internal market" and considered that "those barriers should be eliminated."[28] How do the objective of health protection and that of market harmonization relate to one another? This question became a topic of legal conflicts as soon as the first European texts on tobacco were released. The United Kingdom contested the 1989 directive as soon as it was adopted and argued that the European Council had adopted legislation with an explicit health-related objective yet had used the majority vote to pass it. According to the treaties, majority vote was possible for matters related to the internal market but not those related to health.[29] In other words, the United Kingdom challenged the legal basis of the directive on the grounds of what it saw as a contradiction: how could the European regulation target health objectives (for which it had little competence and in all cases required a unanimity vote at the European Council to pass) using the tools of market integration (which made it much more powerful, no less so because only a majority vote at the European Council was required)?

The United Kingdom lost its case. European scholar Joseph Weiler argues that this episode is the perfect illustration of what he identifies as "the transformation of Europe" throughout the 1970s and 1980s. Weiler characterizes this transformation as "the erosion of the principle of enumeration" whereby the competencies granted to the European bodies are enumerated in an exhaustive way. Instead, Europe can find new areas of intervention not previously envisioned, such as health. But this is done not by introducing a European health policy (a domain left to member states) but instead through the regulation of the market and, more exactly, by making European objects to which additional qualities are added, in this case related to tar yields, additives, packaging, and labels. Here, European market objects are standardized for the sake of a health

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policy objective but according to the methods of market harmonization and legally justified by market harmonization. This means that tobacco products, as protected food products, are not exceptions to a harmonization project based on disentangled market objects but instead illustrate how this project provides resources for extending European interventions to new domains.

CONSTITUTIONAL MOMENTS

When Weiler commented on the 1989 tobacco directive, he saw it as an important milestone in the extension of the European power to act, as the legal ground of market integration could be used to pursue health policy. The European Court of Justice played a fundamental role in this process, as it upheld the 1989 directive. This episode can be seen as a "constitutional moment"[30] in Sheila Jasanoff's terms during which the nature of the European power to act was questioned and eventually extended. The constitutional strength of the European regulation of cigarettes (and tobacco products more generally) is not limited to the 1989 directive. Tobacco products have been problematized as market entities in need of harmonization since then, and the legal basis of the successive European texts has remained the harmonization of the internal market.[31] The story of the contestation of the successive European texts then reads like that of successive constitutional moments whereby the European Court of Justice draws and redraws the perimeter of acceptable operations of object making, legally grounded in market integration but with explicit health motives.

Consider, for instance, the 1998 directive that attempted to ban all forms of tobacco advertising.[32] Legal challenges were organized by Germany, supported by the United Kingdom and tobacco companies, on the grounds that the directive based its intervention on the regulation of the internal market while introducing measures related to health policy—that is, the exact same legal argument that the United Kingdom had used to challenge the 1989 tobacco directive. The European Court of Justice eventually annulled the directive in a case known as Tobacco Advertising that became famous among legal and European scholars.[33] As a scholar of subsidiarity in Europe puts it, "In Tobacco Advertising the Court of Justice

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struck down, for the first time in the history of the European Union, a European legislative act on the grounds that the EU was acting outside its jurisdictional boundaries."[34]

Tobacco Advertising eventually resulted in a directive that was much less ambitious than the original one. Rather than banning all advertisements for tobacco, it only banned cross-border advertisement (via print media, radio, and the Internet). While Weiler saw the 1989 tobacco directive as a clear sign of unlimited extension of European power, Tobacco Advertising was seen as a halt to the extension of European power. It has been described as such by legal scholars and theorists of European integration who interpret the European Court of Justice decision in those terms: "the Community is commended for empowering private operators to trade on a level playing field but condemned for encroaching on their economic freedoms."[35]

Tobacco Advertising, however, represented less a halt in a process of expansion of European power than an episode in the gradual definition of the appropriate scope of European intervention. The subsequent tobacco directives were similarly challenged by the same actors and using the same legal argument, that is, that an impropriate legal basis was used to pursue a health objective.[36] But in the latter cases, the European Court of Justice constantly upheld the European text.[37] What primarily mattered in these decisions was the ability of the European regulation to use the articles of the European treaties related to the internal market. One such decision was the ban of flavored cigarettes, which was challenged before the European Court of Justice and eventually upheld in 2001. What the court decision[38] and the corresponding press release insisted on was the "smooth functioning of the internal market."[39]

What emerges from the successive court cases about tobacco is a negotiation over the appropriate way to use market integration as a basis of European integration.[40] This dynamic has been widely commented on by legal scholars. Some of them are critical. They consider that the court cases are poorly argued[41] or that none of the measures of the tobacco directives can be said to have a visible internal market objective, as member states can still adopt more constraining regulatory measures for a health objective.[42] Others see the tobacco court cases as successive approximations of what subsidiarity means in practice, what role the European Court of Justice is supposed to play in moving the European regulation forward,[43]

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and to what extent the European institutions can use the organization of the internal market as a source of legitimate action.[44] Some have spoken of the pragmatism of the EC, which has deliberately framed its regulatory intervention in such a way that the European Council could decide by majority voting in order to avoid requirements for unanimity, as when matters of public health are concerned.[45]

These discussions are signs of the importance of the case of tobacco as an illustration of the ambivalence of European pseudofederalism, which grounds its legitimacy in the regulation of the Single Market while pursuing public health objectives.[46] These debates display a particular problematization of the European intervention revolving around the extension of European power through the regulation of market objects. By adding new qualities to European objects (as cigarettes become risky objects expected to be presented as such) or eliminating others (as these cigarettes cannot be differentiated according to their taste),[47] European interventions make and remake new objects to pursue wider objectives than the mere harmonization of the internal market, although harmonization serves as a legal basis.

Here, the extension of the scope of European interventions to new domains is based on an argumentation related to the market. This does not mean that scientific arguments play no role. Scientific arguments are in a sense everywhere, as proponents of the regulation of tobacco regularly use them to argue for stricter regulatory choices. For instance, critics have challenged the test used to measure levels of tobacco inhalation, as these tests are crafted at the International Organization for Standardization by private players who have direct interests in their outcomes.[48] In turn and through a process that has been described by historians of science interested in the manufacture of ignorance, opponents of regulatory initiatives have used scientific arguments to postpone regulatory action.[49] The ruling of the European Court of Justice that upheld the 2001 and 2014 tobacco directives mentioned scientific knowledge backing the causal link between tobacco and negative health effects and the connection between health warnings and consumer behaviors. But the key legal argument was about the possibility and modality of market integration, not about science.[50] Harmonizing the European market here is the source of legal reasoning and thereby a powerful lever for the European regulation to enter new domains of intervention.

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HARMONIZING EUROPEAN MARKET OBJECTS, EXTENDING EUROPEAN POWER

The United Kingdom played an important role in the tobacco story, arguing against the extension of European power, considering that objects such as cigarettes might well be European as long as they remained market objects and were regulated as such and not by introducing additional qualities meant to control their risks. The British position (which was at some point also a German and a Polish one) consisted of interpreting the legal justification of the European directives as a strategic move diverting market harmonization from its original nature with little accountability. Regulating cigarettes in Europe, by contrast, consisted of endowing market objects with additional qualities to govern public concerns—and this indeed required an extension of the European power to act.

This dynamic and the democratic issues it raises is not limited to tobacco. We will encounter examples of market objects used to extend European interventions to new policy fields in the next chapters. But there is one that is useful to mention at this stage because the United Kingdom was again a central contradictor, and the issues it raised were strikingly similar to when it had challenged tobacco directives. This case is that of financial risks. After the 2007 financial crisis, European institutions attempted to regulate credit-default swaps (CDSs). CDSs are insurance-like products. When tied to sovereign debts and further distributed, they can lead financial actors to bet on the default of sovereign countries, thereby making this very default even more likely.

In 2012, a new European regulation[51] defined rules that CDSs had to follow to be authorized on European markets. These rules were related to the potential risks they caused for the stability of financial markets. So-called naked CDSs (i.e., those with uncovered position) were banned when concerning sovereign debt (this was a direct reaction to the sovereign debt crisis), and transparency requirements were made much more stringent. This can be read as yet another example of making a European object—this time an immaterial one—by including qualifications related to the risks of the product to make it eligible for circulation on the European market.

As in the tobacco case, the logic of the regulation was dual. A direct answer to the financial crisis and its aftermath for European sovereign debts, the regulation targeted financial risks. But the regulation also asserted

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its basis on the need to integrate the internal market. This dual logic was at play as the regulation granted considerable additional power to a European agency created in 2011, called the European Securities and Market Authorities (ESMA). Under the 2012 regulation, the ESMA was granted an independent power of intervention to counter "a threat to the orderly functioning and integrity of financial markets or to the stability of the whole or part of the financial system in the Union."[52] In such cases, the regulation authorized the ESMA to replace national regulators in requiring further disclosure of information or to introduce constraints on CDS transactions. The ESMA was granted a competency related to financial risks, and the regulation did so under the Single Market provision of the treaty, that is, the same legal basis as in the tobacco directives.[53]

The 2012 regulation was challenged by the United Kingdom at the European Court of Justice in an action that was widely considered yet another attempt by the United Kingdom to prevent legal constraints from targeting London's financial sector, in line with previous critical stances and antiregulation activism.[54] This interpretation is similar to the tobacco story opposing the regulation of risks and the economic interests resisting these constraints. As in the case of tobacco, this interpretation, while relevant, risks obscuring the extension of European power through market objects. The United Kingdom contested the 2012 piece of legislation on the grounds that it extended far too much the power of the ESMA, in contradiction with previous rulings limiting the power of bodies to which the EC delegates executive action and with undue reference to the integration of the internal market. The European Court of Justice eventually upheld the regulation.[55] The court considered that the ESMA's interventions related to the stability of the Pan-European financial market[56] and that the EU legislation could use the most appropriate method of harmonization depending on the context and the circumstances, especially in domains where there were "highly technical and specialist analyses to be made."[57] The court described the power granted to the ESMA as "technical" and "executive" in nature, not "quasi-legislative," as the United Kingdom (and the advocate general) had argued. One can identify the same underlying logic as in the tobacco case in that regulating European market objects (in that case CDSs) made it possible to use the regulation of the internal market as legal grounds for European intervention on risks. In this case, the court

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confirmed that "financial market integration" (the overall legal basis of European action) could require action on "financial stability" (i.e., related to risks). As with the regulation of the health risks of cigarettes, the control of financial risk was introduced "in the name of market integration."[58]

The European Court of Justice decision was well received by some. The Green Party, for instance, welcomed the ability of the European legislation to challenge "the continuing application of divergent measures by Member States." The Green Party described those measures as "obstacles to the internal market,"[59] interpreting the ruling as confirmation that the regulation of the internal market was "an appropriate legal base for safeguarding financial stability."[60] Others, however, in terms closely related to those used more than a decade earlier by Weiler, questioned "how far the single market can be stretched as a governance framework."[61] While some saw a victory of market regulation against deregulation forces, others challenged not only the legal basis to do so but also the democratic implications of the significant extension of European power that the European Court of Justice upheld. As in the tobacco rulings, the opposition line separated proregulation actors (and primarily the EC) from those who supported private interests and softer regulatory interventions. Yet the very logic of European intervention through the regulation of market objects also has a strong (anti)democratic dimension, clearly apparent in the opinion of the advocate general, which the court did not follow: "the outcome of the ESMA power is not harmonization, or the adoption of uniform practices at the level of the Member States, but the replacement of the national decision-making by EU level decision-making."[62]

In the United Kingdom, this provided further cause for concern among those worried about the growing power of the European institutions. A good illustration is the General Council of the Bar of England and Wales, which lamented in a 2016 report the "apparent trend towards extending the use of the internal market Treaty legal basis to matters beyond what we believe to be within its scope."[63] In this case, increasing the power of a European agency in charge of a technical task was justified by market harmonization needs. Of course, what is qualified as technical should not be taken for granted if only because of the strong opposition it encountered from the United Kingdom. The United Kingdom considered that the 2012 regulation of CDSs was also very political in that it granted extensive

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powers of intervention to a European body outside of what had been envisioned in the treaties. The European Court of Justice, by contrast, ruled that financial stability and financial market integration could not easily be distinguished. Accordingly, the court considered that defining and acting on CDSs for the sake of market stability was a technical task that could be reserved for the European institutions in charge of the technicalities of market integration. Such boundary work confirmed a significant extension of European power, once again made possible by regulatory interventions on market objects.

THE AMBIVALENCE OF EUROPEAN MARKET OBJECTS

Food products, cigarettes, and CDSs could have been thought of as exceptions to the harmonization project. Instead, they have appeared as extensions of the European power to extract mundane entities from their context of production and turn them into market objects—what chapter 2 called the power to disentangle. The qualities of food products of known geographic origins, standardized cigarette packets, and controlled financial products have made them powerful tools for Europe to extend the perimeter of its policy intervention because they have been part of a harmonization objective. The controversies about this extension reveal an ambivalent situation. The examples we encountered in the previous pages are useful counterpoints to the case of CE-marked construction products that I discussed in chapter 2. European objects can be more than components of an economy without qualities. They are not necessarily devoid of any relations with people's needs and expectations. European objects can be directly linked to public concerns such as food practices, human health, and financial stability. They even offer a practical path for responding to these concerns at the European level. Yet, this response adopts legal forms that are complex to decipher for the European public, strategically use the objective of market harmonization for other policy goals, and regularly raise issues of accountability. The mechanism of extension of European power that we came to understand supposes that the harmonization of market objects is a task defined as "technical," which provides considerable leeway for the European institutions to pursue policy goals in various domains. The examples discussed here have shown that these policy goals may relate to

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domains as diverse as rural development, the protection of human health, and the stability of financial markets. The European interventions targeting these goals may be well intended, but as they proceed by subtracting whole chunks of policy issues from the domain of deliberations explicitly seen as political, they inevitably limit the democratic possibilities of European integration. As critical scholars and reluctant member states have noted, this extension of European power risks leading to a collective order whereby bureaucratic experts are those in charge.

Is it possible to envision European objects that would offer the levers of policy action that we know are powerful *and* would be collectively discussed in more democratic manners? Can protected food products be defined in ways that take the variations of the "local" into account, and can standardized cigarettes be discussed for what they are, hazardous consumer goods and not mere market objects? This would require rethinking the practices of market organization not as mere technicalities to be left to knowledgeable experts but instead as being tightly associated with public concerns worthy of collective examination. This would turn European objects into components of an economy of qualities whereby the qualification of goods is a matter of collective exploration.[64] This is an invitation to explore alternatives to the dream of a neatly disentangled market, possibly under the form of plural markets where economic exchanges are associated with collective concerns or "concerned markets," as they have been recently described.[65] The following chapters will provide elements to do so. But there is one issue we need to raise at this stage.

I started this chapter with the opposition between harmonizing the market and protecting from it. We now understand that this opposition is only apparent, as European institutions have a clear incentive to enlarge the scope of market objects since they offer greater room for maneuver and indeed additional paths for policy interventions. But this mode of action relies on a strong hypothesis that the entities at stake *can* be turned into market objects. This hypothesis is not problematic for food products, cigarettes, and financial products, which are tradable goods even if they are caught in the European regulatory machinery. This is not the case for other objects because whether or not they can be traded is debatable. A well-known case is that of hazardous waste. It is not surprising to learn that the EC has been attempting to disentangle hazardous

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waste materials from their local sites of production, make them circulate across Europe, and create incentives for their treatment by turning them into new market objects. This objective has been challenged since the 1980s, and counterpropositions suggest that hazardous waste materials should *not* be considered market objects but instead should be considered inherently risky entities to be carefully controlled and with limited circulation.[66] Today, member states are still in a position to object to the shipment of waste, construed as "an exception to the free movement of goods,"[67] after a long story of legal challenges and contradictory rulings of the European Court of Justice about whether market integration can be used as an acceptable legal basis for acting on risk issues.[68] I will not get into the details of these twists and turns, which have been recently extended to new kinds of waste, particularly electronic waste, that some European programs would be keen to turn from problematic industrial externalities into valuable market entities.[69] We are now familiar with the kind of discussion between proponents of extended European regulation and their critics about which sector of policy action is appropriate for European interventions and whether or not the harmonization of the Single Market is a sound legal ground for conducting a de facto European risk policy.[70] What is interesting for our reflection at this point is that the case of hazardous waste opens up a new range of questions about what turning nonmarket entities into market objects implies, whether or not it is appropriate to do so, and how and by whom the boundary between what can be traded and what cannot is discussed. If the dream of the harmonized market neatly disentangled from politics can give way to a more plural perspective made of concerned markets, then the question of where markets should stop ought to be asked. We will encounter this question in chapter 4 that focuses on energy, a domain where the extension of European power by the market has been regularly reaffirmed but has become problematic as new environmental concerns emerge. These made the problem of what can be traded and what should not be part of the market even more salient.

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4

ENERGY AND THE PROBLEMATICS OF DISENTANGLEMENT

MARKETS OF ENERGY

There are European objects that do not easily turn into market entities. This chapter focuses on energy and discusses European interventions that were intended to turn it into a European market object or use immaterial market objects to govern it. I encountered the issues of energy several times over the past few years, and they always weaved together questions of market integration, policy making, and materiality. Colleagues from the Tensions of Europe project, which has provided important historical studies of the material construction of Europe, invited me to a workshop in 2014 and talked about the crucial role that electricity networks have been playing in European integration since the early twentieth century.[1] As they focused on contemporary issues, many of them insisted on the European Commission's (EC) understanding of energy as an economic good like any other on the Single Market, which should easily circulate across the European Union (EU). The dream of the neatly disentangled market was clear there but conflicted with other policy considerations, such as the security of supply and the support of state-owned electricity companies. The empirical work I was doing at the time about biofuels and whether or not they could be considered sustainable seemed to provide a stark contrast to the dream of the harmonized market. Biofuels

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are controversial sources of energy, supported by European policies but regularly criticized for contributing to deforestation in direct and indirect ways. What I encountered at the time were many markets of biofuels for which various certification schemes coexisted and mixed the technicalities of market organization with the representation of the concerns of various actors.

This chapter builds on the important body of scholarly works on European energy policies as well as research projects I have been involved in about the European carbon market, the certification of green energy and biofuels to explore the controversies related to the modality, and the very objective of disentangling European energy markets. The problematization of energy in European circles illustrates the challenges of disentanglement as well as significant recompositions of how to harmonize European markets. It is indeed not always easy to extract standardized market entities from energy flows and to consider that energy markets can and should function outside of the realm of political negotiation. This has to do with the specific material and social properties of energy. First, the European objects related to energy are of a different nature than consumer goods. Energy is a flow of electrons or molecules that is usually difficult to trace and requires accounting practices to be exchanged. If energy can become a European object it is a strange kind of object, one that articulates electrons or molecules and accounting entities. Second, energy has been problematized within the European regulatory arenas as not only a market issue but also an environmental concern. While climate change has become a pressing problem, the question of how to make energy sustainable has become an issue in policy circles. The environmental concern is not antithetical to the market, and we will see that market-based instruments have been used to respond to that concern. But this also makes it more difficult to severe the ties between energy markets and public concerns. Third, European interventions can target the harmonization of the energy market but the treaties leave the detail of energy policy to member states. The development of renewable energy, even if supported by European regulations, remains above all a national concern in the domain of national policies.[2] Thus, only coordination and indirect interventions seem to be available for European policies to promote sustainable energy. In a way that echoes the mechanism described

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in chapter 3, we will see that creating new markets for immaterial entities has been considered as a possible means of European intervention, with mixed degrees of success.

These considerations show that energy policy in Europe as elsewhere necessarily brings together social and technical dimensions.[3] In this chapter we will see that extracting energy and turning it into a European object is challenged by the technical and social qualities of energy. This challenge is visible when considering attempts at liberalizing the European energy market, as the EC has been attempting to do since the early twenty-first century. I start this chapter by discussing this objective, showing that it is a case of attempted disentanglement of European objects meant to be market entities. The difficult harmonization of European energy markets has resulted in the reaffirmation of the objective of disentanglement. But the harmonization of sustainable energy policies has taken a different path. I will comment on attempts at introducing markets for immaterial entities carrying the positive or negative externalities of energy as a means of promoting sustainable energy. The so-called carbon market is an illustration of the introduction of a new immaterial and standardized European market object, which in ways that echo what we encountered in chapter 3 can serve as a proxy for extending the scope of European interventions. Other initiatives related to biofuels and green certificates that were expected to carry the green value of energy show that similar attempts at introducing new immaterial market objects faced significant challenges. Rather than a neatly disentangled market, these latter cases eventually led to a plurality of markets, all entangled with day-to-day negotiations explicitly seen as political. As such, these examples suggest that harmonization can be envisioned in ways that differ from the disentangled market. These alternative paths are also prone to instability. They emerge from situations where objects become explicitly political in that they are closely associated with national policy choices, the concerns of various publics, and the economic interests of powerful companies.

MAKING ENERGY EUROPEAN

The idea that energy could be considered a driver of European integration is not new. Electricity networks resulted in trans-European ties even

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before European integration acquired a legal dimension,[4] and energy was at the core of the early European treaties, such as the post–World War II European Coal and Steel Community and the 1958 Euratom Treaty about nuclear energy. But energy has regularly been considered a problematic domain of European interventions. The early initiatives in coal, steel, and nuclear energy fell short of turning energy policies into coordinated European initiatives.[5] In the 1960s the EC nevertheless still envisioned a "Community energy policy" that would "fully integrate the energy sector into the Common Market."[6] In 1964 the European Council stated that this "community energy policy" was an objective,[7] but it was only with the 1986 Single European Act that the objective of the internal market for energy was included in a European treaty.[8] This objective was controversial among member states and gave rise to complex negotiations,[9] eventually resulting in numerous initiatives undertaken by the EC in the 1990s and 2000s to integrate the European energy market, mostly electricity and gas. Since the 1990s, the EC's predominant mode of action regarding energy has been related to the organization of the internal market.

The materiality of the objects at stake, however, significantly differs from the consumer goods we encountered in the previous chapters. Electricity is made of electrons; oil and gas are made of hydrocarbon compounds. Yet electrons and hydrocarbon compounds cannot be differentiated according to their qualities. Electrons produced through renewable sources are not physically different from electrons from coal and nuclear plants. Hydrocarbons resulting from biofuels instead of conventional fuels are not physically different from conventional hydrocarbons. Another material constraint is linked to the practical organization of economic exchanges, the infrastructural needs of which (electricity networks and gas lines) severely constrain their possibilities. These infrastructures also make it difficult to track the physical components of energy, especially in the case of electricity. In transnational circulation, the real-time equilibrium of the electricity network means that it is impossible to track the exact circulation of electrons. When Germany buys electricity from French producers, the electrons originating from the French plant may well circulate through many other sections of the network, possibly even through other countries.

In practice companies do not sell electrons and molecules as such, but promise to provide certain amounts of gas or electricity by a given time

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and at a given price. Accordingly, the European regulatory interventions concerning the energy market do not act on objects similar to construction products, food products, and cigarettes, as described in the previous chapters. Rather than standardizing electrons and molecules, they act on the relationships between actors. Thus, Directive 96/92/EC subdivided the electricity and gas sectors into four segments—generation, transmission, distribution, and supply—and opened generation and supply to competition. The key objective here is the "unbundling" of ownership, in other words "the separation of energy supply and generation from the operation of transmission networks."[10] The logic is economic and presented as follows by the EC: "If a single company operates a transmission network and generates or sells energy at the same time, it may have an incentive to obstruct competitors' access to infrastructure. This prevents fair competition in the market and can lead to higher prices for consumers."[11]

In gas and in electricity, unbundling means that integrated companies need to separate their activities so that any producer or supplier could use the infrastructure networks. The objective of unbundling implies a European energy market where new economic agents operate: first, companies generating and/or selling energy and benefiting from access to the necessary infrastructure networks in order to do so, and second, consumers expected to choose from an increased number of energy suppliers.

Unbundling appears as a vehicle for the liberalization of energy markets, with explicit hypotheses about how these markets ought to function. These hypotheses posit that energy can circulate as a market object provided that the many ties connecting it to local contexts of production, circulation, and consumption are severed. In practice, the objective of unbundling means that traditional economic mechanisms are seen with suspicion since they tie energy exchanges to multiple concerns and interests, often grounded in national considerations such as the security of supply, the determination of prices, or the support for national companies. For instance, specialists of the gas industry consider that long-term contracts "made it possible to secure the financing of gas field and transportation development, and thereby security of supplies."[12] Electricity economists similarly explain that long-term contracts have been used as a way of ensuring that energy would continue to flow in the future, thereby securing the possibility to invest in large-scale projects.[13] By contrast, the

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EC views long-term contracts as instruments that make unbundling more difficult. As economist Frédéric Marty puts it, "long-term contracts are seen as a substitute for vertical integration,"[14] as they tie distributors and producers in long-term partnerships often made exclusive through restrictive clauses.

There are other ties that need to be severed if the objective of unbundling is to be met. The very benefit that unbundling is supposed to provide depends on the expected ability of energy transmission and distribution to serve as a neutral platform supporting economic exchanges. The liquid market envisaged by the EC requires dense infrastructure networks to operate. Yet a geographical understanding of the European energy market shows that this imagined liquid market is at best a network market with nodes, dense areas, and other regions linked by a limited number of connections.[15] This network is a filamentary space, which imperfectly covers the geographical space of Europe, and is characterized by considerable friction. The extension of energy infrastructure networks runs into pressing geopolitical challenges when the plan is to cross the external borders of the EU.[16] But extending the network within the EU is not straightforward either, as high-voltage power line projects routinely face technical challenges and vivid public opposition and are discussed for years in participatory settings.[17]

REAFFIRMING DISENTANGLEMENT

An illustration of the dream of disentanglement, if ever there was one, is the idea that the European energy market would ensure an exchange of energy like any other good without any constraint. The assumption is that energy can be become a European market entity while other concerns, related to the security of supply or national priorities, are set aside. But energy has proven to be a difficult case.

Even if we stick to the network industries, energy seems particular. Neil Fligstein has shown how the telecommunication industry "has been reorganised on a European basis"[18] as firms and European institutions have partnered in opening the market.[19] The picture significantly differs for energy. Specialists of the gas market speak of "fuzzy liberalization,"[20] and in 2005 economists considered that "the EU's goal of a single European

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electricity market remained a long way off."[21] When assessing the electricity market in preparation for future regulations in the mid-2000s, the EC itself was critical.[22] It considered that "gas and electricity markets remain national in scope and generally maintain the high level of concentration of the pre-liberalisation period"[23] and that "incumbents rarely enter other national markets as competitors."[24] The conclusion of the EC's analysis was that market integration had not been conducted far enough. Its inquiry had "identified a number of serious shortcomings which prevent European energy users and consumers from reaping the full benefit of the liberalisation process,"[25] and the current situation "gave scope for exercising market power."[26] Thus, the EC report recommended that competition law be more rigorously enforced and that regulatory measures in favor of further opening the market be taken. The fact that competition law had not worked so far was taken as a sign that it required more effort.

This reaffirmation of the objective of market making has legal and regulatory consequences, as member states are asked to pursue the objective of unbundling. But this also impacts the practical organization of the exchanges of energy. A telling illustration here is that of the technical management of electricity exchanges across member states. The process is complex because it relies on an approximation of the physical flows of electricity from one country to the next. These flows can only be modeled because electrons can circulate in many branches of the network, and their exact trajectory cannot be known. Once the physical flows are estimated, commercial exchanges can then take place. These estimations have traditionally been conducted on a bilateral basis, with national network operators engaging in regular discussions about the quantifications of electricity flows. This situation is currently evolving as the EC and certain national network operators[27] attempt to approximate physical flows through automated calculation procedures. These calculations aim to automatize the organization of electricity exchanges across borders. As a close observation of the proponents of these new methods shows, automation is expected to ensure that these exchanges are not outcomes of bilateral negotiation and instead are realized only through the technical rationality of the market.[28] The engineers and economists developing these methods hope to manufacture a new space of calculation not limited to bilateral exchanges between national regulatory bodies

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but instead modeling all electricity flows across Europe so that financial exchanges could better approximate the reality of physical exchanges. They consider this approach to be "more objective" and contrast it with the "subjective" interventions of member states eager to defend their own interests, such as those related to the security of supply.[29] As such, calculation methodologies can be seen as ways to disentangle market operations—understood as a matter of mere technicalities—from bilateral negotiations between member states. These methodologies are the practical instruments through which transnational exchanges are expected to operate as pure market operations unconstrained by interventions seen as political. This choice, of course, makes the construction of the model a sensitive process and grants much latitude to the engineers and economists in charge of developing them, which points to the crucial role of calculation techniques in purifying the market from politics and to the fact that this operation itself has a politics.[30]

The European interventions consisting of calculating the transnational physical flows of electricity are illustrations of the pervasiveness of the objective of disentanglement. As energy is expected to be turned into a European market object, many instruments are needed to ensure that there is actually such a thing as a European energy market. In parallel, the overall objective is stated explicitly in the European regulation. The 2009 Third Energy Package, for instance, comprising two directives and three regulations, restated the objective of providing for "competitive and integrated energy markets" that allowed "European consumers to choose between different suppliers, and all suppliers, irrespective of their size, to access the market."[31] That the many physical, economic, and legal ties in which energy is caught make this objective challenging has not transformed the expectation.

A EUROPEAN POLICY FOR SUSTAINABLE ENERGY?

The 2007 Treaty of Lisbon nevertheless mentioned a larger scope of European action on energy, including the "security of energy supply in the Union" and the promotion of "energy efficiency and energy saving and the development of new and renewable forms of energy."[32] These new themes of concern about energy were included in a series of legal initiatives, among

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them the successive "Energy Climate Packages" that defined target shares of renewable energy in each member state and target objectives for CO_2 emission reductions and energy efficiency. These objectives were regularly framed as the "20-20-20" targets (20 percent share of renewable energy, 20 percent reduction of carbon emissions, 20 percent increase in energy efficiency by 2020). The need for a "Community-wide strategy" for the promotion of renewable energy had been made explicit already in the mid-1990s[33] at the same time that the electricity and gas directives were adopted. In 2014 reflecting the growing importance of the energy issue for European action, the Juncker Commission launched the "Energy Union." This program was headed by a high-ranking official, a dedicated vice president of the EC in charge of the diverse European objectives related to the energy market, security of supply, and climate objectives.

But how, then, can the objective of market making be articulated with other policy imperatives, such as those related to the development of renewable energy? Scholars of European energy policy state that while these domains are presented as priorities, they are indeed subsumed under the general objective of market development.[34] Scholars point to the potential contradictions between the environmental goals of renewable energy and the consequences of liberalizing energy markets, which could clash with national support measures for renewable electricity, suspected of introducing trade distortions.[35] Should we consider that there is a domain of policy action (supposedly European) where energy is expected to be turned into a market entity and that there are other domains (supposedly national) where it is a public concern tied to environmental issues? Is there an opposition between the forces of market liberalization, on the one hand, and growing support for active policy interventions for the sake of the environment, on the other? This reading would be too simplistic because the development of renewable energy can fit perfectly well with market reasoning. The support for sustainable energy has indeed been framed in terms of market development, notably of green technologies. The most visible European support for renewable energy has taken indirect forms, such as regular benchmarking of member states' progress toward their target shares of renewable energy and funding mechanisms for European research projects. One should adopt a nuanced position when considering European interventions that articulate market and

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environmental objectives. Many of them have used market-based instruments and certainly have not been conceived as being antithetical to the market. But the interest of sustainable energy for our reflection on European objects is broader and also points to the pervasiveness of the dream of disentanglement of European market objects and the possibility of reimagining harmonization in different terms.

A prime example to start this discussion is provided by one of the most visible European interventions in the field of energy and climate, the European "carbon market" known in regulatory terms as the Emissions Trading System (ETS). The ETS was introduced in 2007 and was expected to give a price to carbon, thereby producing incentives to reduce carbon emissions. Within the ETS, the carbon emissions of each member state are capped. Emission allowances are then allocated, or auctioned off. They can also be bought and sold. These carbon allowances become immaterial entities expected to circulate as market objects throughout Europe. They are standardized and are designed to be a vehicle for making all emissions "the same" through carbon quantification.[36] With the ETS, European environmental policy was expected to progress thanks to a new market object, the immaterial carbon allowance. This object is disentangled from the local site where it originates and carries throughout a European market the carbon cost of energy production and use. Standardizing market objects to extend the perimeter of European interventions is a mechanism we encountered in chapter 3. In the case of the ETS, the introduction of a new market object could circumvent the difficulties encountered by other approaches. Because taxation issues require unanimity voting at the European Council, introducing a European carbon tax was a difficult task.[37] By contrast and in a way that echoes the extension of European power that I discussed for tobacco and financial products, creating a new harmonized market object was less constraining for the EC.

The European carbon market has been controversial. Does the ETS indeed incentivize carbon-emitting actors to change their behaviors? The price of the carbon allowance has remained low, so it seems that the answer to this question is negative. But why this is so is interpreted in different ways. Critics point to the inherent issue of a market-based mechanism that is prone to fraud and permanently weakened by exemptions and special conditions and is ultimately unable to introduce the

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constraining actions necessary for the fundamental changes that decarbonization requires.[38] Another interpretation, often heard in the European institutions, is that the immaterial market of carbon allowances has not been functioning as a proper market. Instead, allowances have been allocated for free, and quotas are set in ways that result from negotiations about national particularities. For instance, member states from Eastern Europe claim that their carbon-heavy industrial sector would mean that they bear a disproportionate cost, which should be compensated for by free allowances. Proponents of the ETS see these negotiations as political disturbances,[39] claiming that the carbon market should instead be properly sealed off from politics. They argue in favor of an increase in the amount of allowances that are auctioned off instead of allocated for free and of automating the calculation of national quotas and eliminating excess allowances.[40] These are two recent amendments made to the ETS, intended to ensure that the carbon market can operate as an autonomous market outside of political considerations, pretty much as automatized calculations are meant to ensure that transnational electricity flows are not subjected to negotiations among member states. Here again, the difficulties in ensuring that the market functions cause European actors to pursue and extend the objectives of disentanglement. In many respects, the ETS is a prime illustration of an approach that aims to carve out a domain for the market and defines policy making as the ability to ensure that the boundaries of the market are well maintained and that the technicalities of market organization are sealed off from considerations seen as political disturbances.[41]

BIOFUELS AND THE CONSEQUENCES OF IMPERFECT DISENTANGLEMENT

In the European discussions about how to reconcile market and environmental objectives, the carbon market has become a focal point and an ambivalent reference. This is because the European carbon market explicitly raises issues related to disentanglement. Typical questions involve how to disentangle a new market entity expected to become European, especially an immaterial one that carries the externalities of energy, and how to disentangle the technicalities of market organization from the political negotiations of policy making. These questions have been raised

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because the objective of disentanglement has never disappeared. The ETS might well be a unique example, though. Other attempts to disentangle immaterial entities from energy have been far less conclusive and as such suggest that European markets can be reentangled with public concerns.

The case of biofuels deemed sustainable is an illustration of imperfect disentanglement and a telling contrast to the ETS.[42] Originally promoted as a green alternative to conventional oil, biofuels have been proven to have negative environmental consequences when their production destroys natural habitats, particularly in tropical regions. The 2009 renewable energy directive introduced criteria for biofuels to be considered sustainable.[43] These criteria relate to the conditions of production (what kind of land does the producer use?) and to the overall assessment of carbon emissions (how much carbon will eventually be released by the production of x tons of biofuels?). As such, they do not make biofuels produced in sustainable ways physically different from other biofuels produced through deforestation or resulting in land-use change. These considerations imply that criteria such as those introduced in the European regulation need to be tied to a labeling system whereby what happens on the site of production can be tracked as biofuels circulate through the industrial chain of transformation. This is all the more challenging because the production of biofuels involves a long industrial chain through which raw materials are gradually transformed into usable fuels. At each point on this chain, flows from different sources of biofuels are mixed with one another. Eventually conventional fuels and biofuels are also mixed together so that the fuel bought by the end user is a mixture of a wide range of fuel sources.

An obvious answer to the issue of tracking sustainable biofuels is the construction of a dedicated industrial chain whereby only biofuels that meet sustainable criteria can flow. Companies were quick to underline the costs and practical difficulties of such an operation, which requires no less than building a whole new infrastructure dedicated to biofuels. The EC accepted their argument.[44] The preferred option of professional organizations such as the European Biodiesel Board was that a market of immaterial certificates be created.[45] They proposed that industries be able to buy and sell immaterial sustainability certificates and also be able to attach them to or from the biofuels they produce or transform. In the world of environmental certification, the approach is known as

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"book and claim." For instance, the Roundtable on Sustainable Palm Oil organizes a system within which certified plantations can sell virtual sustainability credits to companies that commercialize biofuels. These latter companies can relabel their biofuels as sustainable once they have bought these credits. Applied in Europe, the book-and-claim approach was intended to disentangle a new European object (a tradable certificate guaranteeing the sustainable quality of biofuels) and a new European market, that of immaterial certificates.

In introducing an immaterial market object expected to stimulate desired behaviors, the book-and-claim approach echoes the logic of the carbon market. The ETS was, however, an ambivalent reference in the discussions about the sustainability of biofuels.[46] Nongovernmental organizations were strongly opposed to the book-and-claim method and turned to the ETS to argue that the efficiency of a market of immaterial entities was not guaranteed if not entirely dubious.[47] Eventually the EC stated that "the 'book and claim' method is open to fraud and will not deliver a price premium."[48] Thus, the EC considered that producers of sustainable biofuels should be allowed to sell biofuels at higher prices, which in turn required a connection between the qualification of a biofuel as sustainable and its material characteristics. Accordingly, the 2009 renewable energy directive introduced not only sustainability criteria but also a method meant to keep track of the sustainable quality defined by those criteria. This method is known as a "mass balance system." Within this system, each industrial operator needs to balance the amount of sustainable matter bought (or produced) and the amount of sustainable products sold by means of a dedicated accounting system. Operators can choose to sell fuels not qualified as sustainable in spite of being derived from sustainable raw materials. In this case, operators will retain a sustainability credit in the accounting system for later use. In other words, the mass balance system disentangles the immaterial sustainable quality from the materiality of the molecules. The disentanglement is only partial, though, and the immaterial sustainable credit is at least partly attached to the materiality of biofuels. Thus, subsequent texts introduced in the wake of the 2009 renewable energy directive made it impossible to sell sustainability credits or to keep them eternally on the accounting books.[49] No such thing as a separate market for immaterial sustainability credits would exist.

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There is another aspect to this imperfect disentanglement, namely the tight articulation between market-making and policy-making operations. The implementation of the mass balance system was delegated to sustainability schemes through which companies are supposed to be certified to be able to sell biofuels qualified as sustainable. These schemes are private and involve different actors, both international and European. Existing international certification systems applied to be recognized as sustainability schemes. Others were tied to professional organizations active in member states and could then involve only companies or a wider set of stakeholders. For example, International Sustainability and Carbon, the German sustainability scheme that was developed with direct funding from the German federal government, involves environmental organizations such as the Wildlife Fund for Nature and is well evaluated in terms of "stakeholder engagement" in benchmark studies of the sustainability schemes.[50] By contrast, 2BSvs (Biomass Biofuel Sustainability Voluntary Scheme), which was created by a French professional organization in the agroindustrial sector, was perceived as a mechanism organized by the industry for the industry and is expected to stick to the minimal requirements introduced by the European regulation.

Sustainability schemes are platforms for negotiating between stakeholders or for representing the interests of particular industrial sectors. This is so because they implement the mass balance system in different ways. Some of them frame large spatial perimeters of calculation, while others restrict it to individual silos. This has much to do with the particularities of harvesting different raw materials. For instance, sugarcane in South America is transformed at the site of harvest, and producers usually apply the mass balance system for each of those sites. Accounting practices also differ according to the temporal validity of sustainability credits according to the geographic location of harvest and whether there is a limited time of harvest (e.g., in Western Europe) or multiple harvests are possible.[51] Thus, the source of variation among sustainability schemes is the fact that they are often developed with particular conditions of agricultural production in mind. During an interview a 2BSvs manager I met stated, speaking about waste and residues, that "operators might choose the system that benefits them the most" and added that "they also engage in developing schemes that will benefit them the most."[52]

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Instead of disentangling a market from policy discussions, the sustainability scheme systems were platforms in charge of both organizing the biofuel market and negotiating with stakeholders. As a result, biofuels can be diversely qualified as sustainable, although how they differ is invisible for the end consumer. The biofuel market can be said to be harmonized in that the same rules apply throughout Europe, but this harmonization is vastly different from what emerges from the European carbon market. Unlike the immaterial carbon permits, sustainable biofuels are mixes of material and accounting entities and are European objects that are imperfectly disentangled. Here, rather than the market being seen as isolated from policy worlds, the technicalities of market organization are thought of as outcomes of political negotiations.

A EUROPEAN MARKET FOR GREEN CERTIFICATES?

The coexistence of variously qualified biofuels, according to the diversity of the sustainability schemes, is a consequence of a certain skepticism about the environmental value of the carbon market, which results in a situation that vastly differs from the disentangled market of standardized immaterial entities, as in the case of the ETS. This was a deliberate outcome of the European regulation. There is another example where the imperfect disentanglement was not a desired outcome but rather an unexpected consequence of the impossibility to carve out a European market for immaterial entities. This is the case of immaterial entities carrying the environmental value of sustainable electricity, the so-called green certificates. I will develop this example with more details than others in this chapter, using a research project I conducted with Brieuc Petit and Alexandre Mallard.[53] It has a crucial interest for me as a case of failed disentanglement that will illustrate the persistence of the dream of the disentangled market, the possibilities of alternatives, and the important theoretical and practical work that remains to be done to build on these alternatives to reconnect European harmonization with public concerns.

In the early 2000s, the EC envisioned setting target shares of renewable energy for member states and allowing them to exchange immaterial market entities to help them reach their targets. Member states producing a lot of renewable energy could sell immaterial green certificates to other

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member states. For instance, Poland could reach its sustainable targets by balancing its coal-based electricity production with immaterial green certificates bought from Austria, where the abundance of hydroelectricity meant that the national target had been exceeded. The EC also envisioned that energy producers, be they public or private, could buy or sell green certificates according to the sustainable energy they produced. Operators of wind turbines would sell the green color of their electricity to producers using coal or nuclear, who could then relabel their electricity as green and sell it as such to their consumers. The monetary value of the immaterial certificates carrying the green color would then serve as incentives for producers to invest in renewable energy production means.

Environmental and consumer groups have been wary of this market-based mechanism. In a public statement announcing a recent report accompanied by the cartoon in figure 4.1, some of them explained that green certificates "can be traded independent of the electricity sold. Suppliers do not have to produce or purchase any kilowatt-hour from a renewable power plant and can use [them] to build a green façade for their marketing."[54] For these organizations green certificates are deceptive

4.1 Painting electricity in green with green certificates, BEUC, 2016.

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tools, leading consumers to mistakenly think that they buy sustainable energy from companies operating carbon-intensive production means.

Within the EC, however, market-based instruments have been seen as relevant tools for energy policy. When Brieuc Petit and I met an official at the EC who had been involved in these discussions, he told us that the early 2000s were a period of enthusiasm for market-based instruments at the EC, including in the departments in charge of energy and the environment.[55] At the time some of his colleagues were designing the future European carbon market, and he was involved in what would have been a green certificate market. The two projects were seen as similar. The ETS gave a price to energy's negative carbon externality, and the envisioned green certificate market would give a price to the positive externality of the greenness of energy. In both cases, market mechanisms would provide incentives to invest in more sustainable industrial processes.[56]

The carbon market had been the subject of numerous simulations in the late 1990s and early 2000s,[57] and similar virtual experiments revolved around the envisioned market of green certificates. In 2001, several European projects simulated a market of green certificates[58] to demonstrate that it would provide incentives for energy producers to invest in renewables. In the virtual world of these simulations, the game of incentives meant that all wind turbines would be built in the north of Europe where winds are strongest and that all solar panels would be built in the Mediterranean countries. In these simulations, a disentangled immaterial market of harmonized green certificates made economic rationality the driver of the development of renewable energy in Europe. These projects supposed that the sustainable quality of energy could be made the same through a harmonized green certificate. They considered that energy policy was a matter of optimizing production costs and environmental benefits, not a matter of an industrial policy used by national states to improve new technologies or stimulate territorial development. In a virtual world where those hypotheses were verified, a European market of green certificates could be manufactured similar to the way in which the European carbon market was about to be created.

For all the initial enthusiasm about green certificates, the European regulatory initiatives of the 2000s did not constitute the European market that had been simulated. The electricity industry union Eurelectric as well

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as the European Wind Energy Association supported the EC's proposal of a market of green certificates. But the European Renewable Energy Federation, members of the Green group in the European Parliament, and environmental nongovernmental organizations such as Greenpeace opposed the envisioned market of green certificates. They argued that standardizing what counts as sustainable was a difficult task. Should cogeneration be included, for instance? Should old production sites such as hydroelectric dams be included? How could green certificates provide incentives to invest in new sustainable means of production? Many of these critics saw the green certificates as yet another green-washing trick offered to polluting industries (see figure 4.1). The decisive opposition came from member states, particularly those such as Spain and Germany that had already introduced policy mechanisms guaranteeing prices of renewable energy.[59] These member states defended their subsidies for renewables from an industrial policy perspective, opposing the disentanglement of energy policy from industrial policy. In doing so, they opposed the EC's definition of renewable energy as a European issue to be handled by the market and reentangled the support for renewable energy with its ties with national preferences for certain industrial sectors and national choices related to territorial development. After repeated attempts by two EU commissioners for energy, Christos Papoutsis and Loyola de Palacio, to persuade the European Parliament and the European Council, the EC finally retracted its proposal.[60] In May 2000, the EU commissioners recognized that it was "too early to decide on a Community-wide framework regarding support schemes" and that "in accordance with the principles of subsidiarity," the choice of renewables promotion instruments ought to be left to the member states.[61] Green quality had been relocalized back within the national space.

Accordingly, the 2001 directive on renewable energy[62] did not create a European market for green certificates and only introduced a requirement for member states to introduce guarantees of origin. Guarantees of origin were not meant to be "exchangeable green certificates" but were expected to help customers identify the renewable origin of the energy they would buy.[63] When member states implemented the 2001 directive, they defined guarantees of origin in significantly different ways. Austria, Denmark, Germany, and the Netherlands replaced existing private green

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certificates with guarantees of origin. By contrast, Italy, Luxemburg, Portugal, and Spain distinguished between guarantees of origin—considered to be merely nontradable traceability instruments—and private certificates expected to be market objects. Other green certificates were progressively added to this already complex landscape, as some member states such as the United Kingdom, Sweden, and Poland[64] introduced their own national systems of green certificates. These certificates were significantly different from one another. What counted as green differed from one system to the next, in some cases even within the same country. For instance, in Belgium the Walloon system considered cogeneration to be a renewable energy source, unlike the Flemish system. Definitions of which installations could use green certificates also differed. For instance, the UK system limited the access to green certificates to post-1990 installations, while Italy limited it to post-1999. Other green certificates did not restrict access so that old hydropower installations could still sell the sustainable value of their electricity as much as new wind turbine farms and solar panel installations.

Instead of the European-wide market of green certificates that had been envisioned and simulated in the late 1990s, what emerged after the 2001 directive was a collection of fragmented markets. Instead of a harmonized European green certificate, guarantees of origin that were not always tradable, private certificates meant to circulate throughout Europe, and national certificates have been coexisting in Europe since 2001. They circulate in different markets: voluntary ones organized by private actors, national markets for national green certificates, and markets for green energy tied to guarantees of origin. One of the consequences of this fragmented landscape is that it provided avenues for private actors to act strategically, as they can choose green certificates with the lowest prices and adapt their use to the diverse support mechanisms introduced by member states.

The EC did not give up on green certificates after the 2001 directive. When working on what would become the 2009 renewable energy directive, the EC proposed replacing the national indicative objectives for the share of renewable energy in each member state by mandatory targets.[65] This was a new opportunity for the EC to defend the European-wide market for green certificates that had been envisioned a decade earlier.

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At the time, some member states (Malta, Luxembourg, and the Netherlands) supported the idea of buying green certificates to reach their target share of sustainable energy. As the directive was discussed, the EC proposed to make guarantees of origin a freely tradable commodity across Europe. Unlike the green certificates market promoted by the EC in the early 2000s, the "open 'market' for guarantees of origin" was not expected to replace the member states' renewable energy policies and would only indirectly contribute to their harmonization.[66] But this relative flexibility was not enough to prevent the EC from again facing the joint opposition of renewable energy associations, environmental nongovernmental organizations, and the governments of Spain and Germany, which argued as they had before that it would put their national sustainable energy policies at risk. The heavy opposition from proponents of existing national support systems undermined the EC's proposal,[67] which was eventually rejected by both the European Parliament and the European Council.[68] There would be no such thing as a unique European market of green certificates.

FROM AN IMAGINED EUROPEAN MARKET OF RENEWABLE ENERGY TO GREEN PROTECTIONISM

The story of the European green certificates is that of failed disentanglements. Constructing a European market for green certificates resembling the carbon market would have meant severing the dense ties linking energy policy with national interests—a daunting enterprise, to say the least. This would have harmonized what counts as green across Europe and would also have shaped a single European policy objective, namely using incentives for the promotion of renewables, whereas green certificates have always had diverse objectives. When Brieuc Petit and I talked to the promoters of the certification of green energy, we realized that some of them saw it as a tool for informing the consumer and ensuring the development of renewable energy thanks to "the enthusiasm of the market."[69] Others explained that they engaged in the development of green certificates to benefit from differences in national tax relief mechanisms.[70] The idea that green certificates could provide economic incentives for investment in renewable technologies was indeed mentioned, but it was only one objective among many.

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The situation here offers a stark contrast to the carbon market and the would-be liberalized electricity and gas markets, as the long-term objectives of disentanglement have been abandoned. As such, the story of green certificates conflates with that of European sustainability policies as a whole. This is a story of growing coordination, as national targets for renewable energy consumption are introduced at the European level and European-wide objectives are defined. But it is also a story of gradual relocalization of policy choices because of the disruption introduced by cross-border exchanges.

In the early 2000s, the increasing amount of cross-border exchanges of green certificates became a public issue in countries that enabled renewable energy produced abroad to benefit from their support schemes. In the Netherlands, for instance, a favorable fiscal support for the consumption of renewable electricity caused massive imports of green certificates coming from Norway and sold by hydroelectricity producers. In 2002, about three-quarters of the Dutch renewable consumption and thus of its public subsidies to renewables could be attributed to imported certificates. The resulting substantial tax losses and public funding of foreign energy producers became increasingly problematic. The Dutch government then decided to cancel the fiscal advantage to renewable electricity consumption and replace it with feed-in tariffs that would support *local* production only. Following the example of the Netherlands, other countries such as Italy and the United Kingdom changed their legislation so that national public support for renewables would be reserved for domestic electricity production.[71]

This relocalization of sustainable energy policies can be read as disruptions in transnational energy markets. These disruptions came to the attention of the European Court of Justice in the 2010s in two cases where electricity producers were denied access to national support policies for renewable energy because they used foreign green certificates or electricity. Between 2003 and 2009, Essent Belgium had used guarantees of origin from Wallonia, Norway, Denmark, and Sweden to demonstrate to the Flemish Regulatory Authority for the Electricity and Gas Market that its electricity was sustainable. The authority eventually fined Essent Belgium 1.5 million euros, arguing that only green certificates showing proof of production of electricity in the Flemish region could be accepted. In the second case, the Swedish producer Ålands Vindkraft wanted to obtain certificates delivered by the Swedish Energy Agency for electricity

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produced in a wind farm in Finland. The application was refused by the agency, which argued that the certificates scheme was reserved for electricity production located in Sweden.

Yves Bot, the advocate general of the Court of European Justice, was in charge of both cases and argued against the national authorities. Bot stated that the decisions of the Flemish and Swedish public bodies breached the EC principles of free movement of goods and that national restrictions in sustainable energy policies were not legitimate. He considered that the objective of environmental protection in promoting renewable energy was not a national one and was better served by acting at the European level, including by using transfers of immaterial entities such as green certificates.[72] His opinion restated the EC's position of previous years as it had tried to separate the organization of the sustainable energy market from national policy choices. In the somewhat small world of energy policy, this return of the ideal vision of a European market made the headlines. "The end is near" claimed an article anticipating the "end to the fragmentation of national energy policies in the EU" and "a big push to the integration of the EU energy market."[73] The European Court of Justice, however, did not follow the conclusion of the advocate general. In both cases, the court considered that the member states could indeed reserve their support mechanisms to domestic producers. In chapter 3, I discussed cases such as tobacco products, hazardous waste, and financial products in which the European Court of Justice has supported the extension of European power through the use of European objects construed as market entities. Renewable energy offers a telling contrast. There, the court upheld a growing trend for relocalization. What could have appeared, through Bot's opinion, as yet another opportunity to make European-wide markets of green certificates and green electricity possible instead further relocalized energy policy choices.

After the failure of the EC's attempts at harmonizing a market of green certificates and at using virtual transfers across member states, these episodes point to a form of harmonization that differs from the dream of the neatly disentangled market, carefully isolated from issues and practices construed as political and where well-harmonized objects (energy and virtual entities tied to energy) circulate. Instead, the situation seems to be that each member state pursues its own energy choices for the sake

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of overall European objectives, such as the 20-20-20 targets (20 percent share of renewable energy, 20 percent reduction of carbon emissions, 20 percent increase in energy efficiency by 2020) that the 2008 energy package introduced. In this situation, the markets of sustainable energy and their associated immaterial entities are tied to national concerns related to industrial policies, local preferences, and broad national choices. They articulate market organization and public concerns and, to use an expression we already encountered in chapter 2, are "concerned markets."[74] Whether or not these concerned energy markets can provide a path for rethinking European harmonization in terms that differ from disentanglement (of the market from policy, of energy from its local ties) remains to be seen. So far, this alternative has never been articulated other than by referring to practices of indirect competition, such as benchmarking.[75] But one can also see this situation as an opportunity to reimagine what harmonization could be and how European objects can contribute to it.

REIMAGINING THE EUROPE OF ENERGY

In June 2017, I sat in a meeting during which an official at the Internal Energy Market of the EC's Directorate-General for Energy addressed a group of French high-ranking civil servants. The meeting was informal and was not related to any specific policy programs. It was, however, an opportunity for the European official to present the overall logic of the European approach to energy as the next energy package was being negotiated. The European official, who had placed right next to her notes an energy economics textbook, presented an ideal vision of a future Europe in which citizens would be in full control of their energy. They would have access to real-time information about their consumption, thanks to individual smart meters, and would be able to sell renewable energy thanks to the availability of technologies (be they solar panels or wind turbines). In short, they could act as well-informed active and calculating agents. She was quick to mention, however, that achieving this goal still required a lot of work. Member states remained reluctant to open up their markets and access to their grids to the many operators that could produce sustainable energy. Price mechanisms were still controlled by national regulators. European citizens were not always given sufficient

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information about how the energy they bought had been produced. They still did not all see the benefit of gaining access to real-time information about their use of energy.

While this vision of Europe's energy future was met with polite skepticism in an arena where longtime proponents of state-controlled nuclear energy were present, it offered a glimpse into an imagined Europe. In this vision, energy would be a perfectly disentangled market object, one that could be bought or sold by any European actors, be it a large industrial company owned by a member state or an individual eager to engage in sustainable energy consumption and thereby act as an economic agent. Here, support for renewable energy and the concern for market harmonization are not contradictory objectives. Not only is renewable energy expected to give rise to new markets of green technologies, it also extends the scope of production and consumption choices. As such, it perfectly fits in an imagined Europe where citizens are above all consumers and where the common good is defined in economic terms. Realizing this imagined Europe requires that energy become a market object. Only then can it circulate freely, and only then can a European market operate in a distinctive sphere separated from policy. As environmental concerns come into the picture, immaterial entities holding the negative or positive environmental externalities of energy can be introduced. These entities, of which carbon credits are the prime illustrations, are new market objects, and because they are expected to provide economic incentives to adopt sustainable behaviors, they extend the perimeter of economic reasoning.

We saw in this chapter that this imagined Europe has barely been achieved, including because of the material and social characteristics of energy. Attempted disentanglements have occurred at multiple levels in attempts to extract market objects from flows of electrons and molecules, green certificates from the materiality of electricity, and market organizations from nation-based industrial policies. But these operations have been difficult and, in the cases of sustainable biofuels and green certificates, have failed to be conducted as expected. Biofuels are governed by the coexistence of various sustainability schemes, which entangle market organization and collective negotiations and define diverse biofuels. The European approach to sustainable energy has moved away from a European-wide optimization according to economic criteria and toward

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an understanding of the diversity of member states' choices regarding their energy mixes.

What emerges from this chapter is a messy situation. One can identify the persistence of the disentangled market objective in European interventions targeting energy and its integration in technical processes such as calculation tools meant to extract energy flows from the domain of negotiations between member states. Yet sustainable energy has also given rise to other types of harmonization whereby the organization of markets is an explicit political terrain and European objects are tied to collective concerns, economic interests, and national policy choices. The concerned markets that accompany the development of sustainable energy show that the dream of disentanglement may be redefined because of the technical and social properties of the European objects at stake. This results in a significant rethinking of the principles and practices of harmonization.

The cracks in the disentanglement project that this chapter examines can lead to two reactions. The first one, evident in the case of the liberalization of the energy market, consists of reaffirming the objective of market integration, restabilizing the boundaries that isolate the domain of the market by replacing negotiations between member states by automated calculation techniques, and further promoting devices such as smart meters that attempt to turn European citizens into individual consumers led by the economic rationality. As the short scene above shows, this reaction is well present at the EC. But it can be contrasted with a second one, which makes the organization of concerned markets an explicit political issue and then considers that what matters is the institutional work able to make it robust enough to integrate the varieties of concerns related to energy. This latter approach has a crucial interest for our reflection here because it displaces the problem of harmonization and ultimately suggests other kinds of desirable Europe. Instead of diagnosing failures of harmonization in the incomplete liberalization of energy markets or the fragmented landscape of green certificates, it identifies another failure that is deeper, namely that of rethinking the very terms in which harmonization is understood. The green certificates' example has shown that the objective of severing the ties between energy and the social, environmental, and economic concerns it is associated with has been replaced by the acceptance that at least some of these ties cannot

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be cut. This evolution can be seen as a growing recognition that the construction and maintenance of various concerned markets is a legitimate goal of market harmonization. It is never phrased in those terms in European circles, and it is at this point that the analysis of European objects can be fruitful, since it opens up new perspectives of harmonization and provides analytical resources for understanding them. Thus, the case of energy shows that the apparent failures of harmonization (when dreamt in too simplistic terms) may well offer illustrations of alternative paths to travel and analytical resources for describing these paths. The second part of this book will complement the dream of disentanglement with another dream of harmonization based on objectivity, and we will encounter numerous examples of such apparent failures.

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5

IN SEARCH OF EUROPEAN OBJECTIVITY

FROM MARKET OBJECTIVES TO EUROPEAN OBJECTIVITY

The previous chapters told the story of the growing power of the European institutions, particularly the European Commission (EC), as they make European objects expected to circulate on the European market. In these cases, the legal and moral justification of the European intervention is the would-be harmonized market, which then offers a path for realizing other policy objectives. Described in those terms, this mode of action could well account for what is probably the most visible European object of all, namely the euro. The European currency might be the ultimate European object, a symbol of European unity although not used for that purpose everywhere in the European Union (EU), and a standardized material entity.[1] The single currency may well be the most visible result of the belief that market integration will lead to political integration. The euro relies on a considerable extension of European power, as sovereignty over monetary affairs is transferred to the European level and to an expert body, the European Central Bank (ECB), whose alleged independence is one of its main characteristics.[2] The recent financial crises have shown the consequences of this extension of power. As citizens of countries such as Greece, Spain, and Italy suffering from the effects of austerity are allured by antieuro political parties' promises, the pressure

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put on them by European officials can all too easily be seen as the worst manifestations of the technocratic tendency of the European institutions. The euro, a monetary construct from which there is no escape, might be another illustration of the dynamics explored in the previous chapters on economic goods. Here as in the cases of construction products, food products, tobacco products, credit-default swaps, and energy, European intervention is grounded on the ability to craft European objects and to problematize policy interventions as a matter of organizing markets.

For the euro as for CE-marked construction products, tobacco, and food products protected by indications of origin, European interventions make European objects intended to circulate on the European market, and European institutions are expected to ensure that they are stabilized as such. The reference to scientific expertise is present but not crucial in the legal reasoning and overall objective. But what about science as a resource for harmonization? Can European interventions be conducted in the name of knowledge recognized as objective and if so in what ways? Can one speak of a "European objectivity" that would provide an authoritative voice to produce knowledge about objects, possibly under the guise of a European public expertise? Objectivity in this context refers to the ability of public institutions to produce facts deemed scientifically robust and politically legitimate. In many cases, objectivity adopts the format of the "view from nowhere," meaning, as philosopher Thomas Nagel writes, that "a form of thought is more objective than another if it relies less on the specifics of the individual's makeup and position in the world."[3] This definition of objectivity has a history. It echoes what Peter Galison and Lorraine Daston call "mechanical objectivity," that is, a way of manufacturing scientific objects through the delegation of technical instruments expected to make the human subject disappear.[4] This is at the heart of the American expertise bodies that have been organized according to the separation between "risk evaluation" (expected to be scientific) and "risk management" (expected to be political).[5]

When translating this approach to the European institutions, the case of the ECB immediately comes to mind. The ECB has been playing on a repertoire of independence to affirm itself as an authoritative voice able to tell the truth about financial matters. As scholar of European integration Antoine Vauchez puts it when speaking of European institutions

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such as the ECB, "independence becomes the matrix for a new type of political legitimacy . . . based on its exteriority in relation to the 'democratic passions' of partisan politics and the 'national egoisms' of diplomatic relations."[6] Of course, this discourse of exteriority should not be taken for granted, and the positioning of the ECB as an expert institution granted with the power of stating the truth about economic matter has its own politics. This politics is visible when the ECB actively engages in maintaining the distinction between economic rationality and negotiations framed as political. Episodes when member states seek to bring discussions to a political terrain—as the Greek prime minister attempted to do when he contested the technical decisions imposed on his country in the midst of the sovereign debt crisis[7]—can be regarded as the logical (and hardly felt) consequences of this boundary work.

The ECB might be an institution that plays on the dream of the disentangled European market and that of a centralized and authoritative (if not authoritarian) European objectivity. But in many other cases scientific evaluation has been controversial, particularly as health and environmental risks became topics of European concerns in the 1990s. One can think of the issues that were raised by the "mad cow" crisis, the never-ending discussions about genetically modified organisms, and the persistent challenges of regulating endocrine disruptors. I will come back to these examples later in this book, and we can already sense that they point to the elusive character of European objectivity. This chapter begins the reflection about European objectivity by focusing on technical objects for which scientific uncertainty and the pervasive implications of diverse actors (including powerful corporations and concerned civil society groups) make it particularly problematic and impossible to think of as the outcome of a single authoritative voice. Should one conclude from these examples that objectivity is a failed European dream? If there are institutional arrangements whereby scientific evaluation and negotiations between various actors are not separated but instead are articulated with each other, can one still speak of objectivity?

Works in science and technology studies (STS) are useful resources for examining these questions. Such works propose examining the many institutional constructs that define the conditions under which public facts are deemed epistemically and politically satisfactory. In doing so,

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they have explored redefinitions of objectivity. For instance, Alberto Cambrosio and Peter Keating speak of "regulatory objectivity" in situations where objectivity is based on shared norms negotiated by a diversity of stakeholders, as in the field of biomedicine. This implies other institutional arrangements whereby the ability to include economic actors (such as pharmaceutical companies) is key.[8] Sheila Jasanoff has contrasted the view from nowhere so prevalent in American institutions with other institutional constructs where the personal identity of the expert and the social groups to which he or she belongs are crucial ingredients of objectivity.[9] This means that one can envision European objectivity in terms that differ from the centralized epistemic authority expected to be independent from considerations seen as political. Whether such a different approach manages to be clearly articulated in Europe remains to be seen, and we will see that this has been challenging. Thus, this chapter argues that the difficulties that European objectivity encounters relate to the challenge of stabilizing discourses, practices, and institutions that define objectivity in ways that articulate scientific evaluation and the exploration of public concerns instead of attempting to separate them.

EUROPEAN MARKETS AND A EUROPEAN VOICE FOR SCIENCE

An entry point for understanding the issues of European objectivity is provided by biotechnology, particular genetically modified organisms (GMOs). Genetically modified (GM) crops and derived GM food products are perfect illustrations of controversial would-be European objects. I will spend some time in this chapter on these cases not as detailed ethnographic accounts but instead more as illustrations of the tension between the dream of a centralized and authoritative voice of science and actual practices of expertise entangling the negotiations of various interests and the analyses of technical matters. As problematic consumer goods, GMOs will also lead us to reflect on the connection between market making and the production of technical expertise.

Whereas in the United States GM products are dealt with by means of the same regulatory instruments as other products,[10] Europe has treated them "as an object of specific regulation."[11] Creating new regulatory categories for GMOs was meant to ensure that these objects were monitored

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by the European public administration. These new categories have been based on a technical and legal apparatus designed to make GMOs traceable across Europe. As such, GMOs might appear as another illustration of the extension of the European power to act through interventions on and by market objects. Traceability would thus make it possible to constitute a new market entity and a new market. European consumers could freely decide to take part or not in this market, thanks to the labeling of food products. Producers would also be able to choose whether or not to produce GMOs or, alternatively, to stick to conventional agriculture. Thus, the European regulation of GMOs introduced the objective of "coexistence," which would be "a precondition for consumer choice" and would ensure "the ability of farmers to make a practical choice between conventional, organic and genetically modified (GM) crop production."[12] By turning consumers and producers into liberal agents, coexistence makes the choice of the preferred type of agriculture a prime objective. Coexistence is expected to occur within a regulatory framework managed by the European Food Safety Authority (EFSA), in charge of assessing GMOs and authorizing only the safe ones. By acting on market objects and qualifying them by integrating new qualities (including "the fact of being genetically modified"), the European regulation would address policy concerns (here the potential risks of GMOs) by harmonizing the European economic space. This ideal depiction of coexistence echoes some of the examples we discussed in chapter 3, such as the regulation of the health risks of cigarettes through market harmonization. Coexistence can be seen as an attempt to envision a well-functioning market and a scientifically sound expertise, both reinforcing each other.

But this imagined well-oiled system has faced numerous issues. Far from yet another illustration of the European power to disentangle market objects, GMOs display the many issues that situations of scientific controversies raise. In the case of GMOs, these issues relate to the qualification of objects, the ability to ensure the boundaries between GM and non-GM, and the validity of European expertise. Let us consider these three points.

The qualification of objects. When traceability is an objective and especially when technological entities such as GMOs are concerned, it is not enough to introduce new legal concepts. "Bureaucratic nominalism" has

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to be completed by a vast chain of material operations needed to monitor these substances.[13] The stability of this chain has been contested, as has the fact that it relies on information provided by private companies. The inherent technical challenges of tracking GMOs imply that even products considered GM-free could contain a certain percentage of GMOs.[14] In the European regulatory landscape, dealing with GMOs as would-be identified market entities for consumers to choose or not has resulted in a seemingly never-ending process of regulatory refinement. Javier Lezaun and Tanja Schneider put it in the following terms:

> The legally relevant definition of "genetically modified" is continued and extended by a cascade of technical reports, guidance documents, and identification protocols produced by European regulatory bodies. The task of these texts is not so much to refine, let alone complete, the original description of the category, but rather to complement it with further qualifications that bring it closer to the world of physical objects. With the help of these qualifications, for instance, "produced from GMOs" . . . has come to explicitly include yogurt fermented with the help of genetically modified lactic bacteria (if the micro-organisms are still detectable in the final product), but to exclude milk from cows fed on genetically modified crops or treated with transgenic medical products; to exclude honey produced by bees foraging on transgenic plants, but include honey that contains genetically modified pollen.[15]

It is only through a process of "endless qualification" that it is possible to control GMOs, authorizing some and possibly banning others from the European market. In turn, this endless qualification constantly oscillates between an appeal to a consumer imagined as a rational well-informed economic agent ready to choose the product she or he prefers, based on a well-designed label, and a gullible individual prone to misunderstanding the health impact of food products.[16]

The boundaries between GM and non-GM. The challenges to an expected transformation of GMOs into well-bounded market entities are also present at the level of their production. The objective of coexistence faces numerous challenges. One of them relates to the practical difficulties of isolating GMOs and preventing the contamination of GM-free areas, as a single bee can transfer genetic material and spread GMOs out.[17] The practical conduct of coexistence has resulted in a flurry of legislative production, the creation of dedicated institutions (including the European

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Coexistence Bureau), and several attempts at clarifying how coexistence should be conducted.[18] These difficulties have given rise to two kinds of critics. Opponents of GMOs claim that contamination is inevitable and that GMOs would eventually spread throughout Europe at the expense of natural varieties.[19] Proponents, on the other hand, consider that the practical difficulties of coexistence would make it impossible to implement and would result in a de facto ban of GMOs.[20]

The validity of European expertise. The difficulties do not end with the boundaries between GM and non-GM, though. Making such decisions as monitoring, authorizing, and banning is not possible without European institutions being able to provide scientific advice with enough of an authoritative voice. The European body in charge is now the EFSA, and its voice is less than authoritative. Years of disagreements between member states and the EC about which GMOs, if any, could be allowed have led to a system that leaves the former with extensive leeway for adaptation. GMOs can be authorized by the EFSA and yet banned in member states nonetheless if they decide to use a safeguard clause. This possibility has shown the impossibility of producing a unified scientific voice regarding GMOs across Europe and has resulted in a patchwork regulatory landscape whereby certain GMOs are produced only in certain member states. Instead of neatly defined markets, diverse ones separated by national boundaries coexist, and intricate legal issues are raised about whether or not subnational entities could also use a safeguard clause and introduce yet other complexities in the European markets of GMOs.[21]

Marked by the impossibility of stabilizing techno-legal definitions and of ensuring the legitimacy of the European institutions in charge of doing so, the GMO issue illustrates the elusiveness of European objectivity and its consequences for the redefinition of market and scientific harmonization. There are two critical accounts of this situation. The first one sees it as an imperfect outcome of a situation whereby social factors have undermined the possibility of producing consistent scientific expertise, resulting in regulatory fragmentation, growing scientific backwardness as compared to other places in the world where biotechnology thrives, and the continuous skepticism of the European public.[22] Such narrative

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of failure can be identified as experts wonder about how to ensure that future innovation will anticipate scientific and social controversies and thereby avoid what they see as the troubled fate of biotechnology.[23] This sometimes prompts calls for a centralized expertise that would at last settle some of the issues. When president of the EC José-Manuel Barroso stated that "it should be possible to combine a Community authorization system, based on science, with freedom for Member States to decide whether or not they wish to cultivate GM crops on their territory,"[24] he envisioned a situation in which European objectivity would at last be realized even if member states persisted in acting in contradiction with it.

It is at this point that a second narrative of failure has been articulated. This narrative considers that the reference to science is used by the European institutions to promote a style of expertise seeking to provide a single authoritative scientific voice instead of considering science as inherently diverse, made of various social factors and for which "pluralist expert advice for uncertainty-based regulation" could be required.[25] When they criticized the European regulation of GMOs and the role of the EFSA, STS scholars Brian Wynne and Fern Wickson considered the problematization of expert advice as a nonpolitical source of knowledge for decision making[26] and the impossibility to open the risk assessment of GMOs to political discussion as major flaws.[27] They saw the reference to science in this context as a "deception," pretending that a centralized expertise could settle issues that run deep into the technicalities of risk evaluation. This second narrative of failure is important because it leads us to open up the dream of objectivity. Rather than calling for a purified science at last freed from political bias, one can envision another proposition for objectivity that makes scientific expertise an explicit political operation worthy of public deliberation and local adaptation.

The case of GMOs has many interests for our reflection. The situation involving GMOs is marked by the difficulty in producing a European authoritative voice able to define and govern objects. While the ECB and the euro provide a telling illustration of the European ability to do so and with significant consequences, the GMO case shows that answering this question is challenging in situations of scientific and social controversy. The European debates about GMOs also show that objectivity can be envisioned in different ways, possibly as the outcome of explicit political

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processes. This latter point connects remarkably well with the practical organization of technical expertise in the European institutions, which can hardly be described in the vocabulary of science extracted from political considerations. To understand this, we can build on the important body of scholarship that has analyzed expertise in European circles.

THE HYBRID NATURE OF EUROPEAN EXPERTISE

In many respects expertise is everywhere in Europe, and the rich scholarly literature on the subject bears witness to that. The conduct of European regulation has been characterized by the growing mobilization of scientific advice through committees expected to provide technical information and expertise, particularly in the health and safety sectors,[28] while networks of experts based in national institutions routinely exchange information and thereby contribute to shaping European regulation.[29] Political scientists have produced detailed analysis of the composition of the European expert groups and the way they operate. They have talked about "technicization" and "depoliticization" to point to the mechanisms whereby large-scale policy issues are turned into matters of expert examination in groups that if not entirely secluded from public view are at least extremely difficult to access for members of nongovernmental organizations (NGOs) and other civil society groups.[30] As these expert groups concur in producing the executive power of the EC at the expense—so their analyses show—of deliberation in the European Parliament and national parliaments, they might well contribute to the EU's democratic deficit and the prevalence of technocracy. In any case, the pervasiveness of expertise in European institutions "changes the nature of power," as Claudio Radaelli puts it, in that knowledge becomes both the instrument and the resource of policy intervention.[31] The pervasiveness of expertise is not independent of the dynamism of lobbying activities in Brussels. Many expert groups are also supposed to be platforms for negotiating with stakeholders.[32] Yet rather than being publicly visible deliberative bodies, they are concentrations of unequal powers of influence, as shown by the numerous studies that have examined lobbying practices in Europe.[33] Even though expertise is everywhere in Europe, it does not usually result in a single authoritative voice originating from a well-defined expertise body. Rather, the production of

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expertise is distributed in many places that also serve as loci for collective bargaining.

This dynamic has not been fundamentally transformed by the growing importance of the technical agencies that operate on behalf of the EC. The independence of the ECB is unique in this respect when compared with other EU agencies and authorities that have been created since the 1990s to provide scientific advice to the European institutions, above all the EC. Consider, for instance, the case of pharmaceutical products. They have constituted a traditionally difficult domain for market harmonization, already recognized as such in the 1985 white paper *Completing the Single Market*. Since then there have been many attempts at harmonizing the pharmaceutical product market, especially since the "multistate approach" in which each member state authorizes medicines on its territory and recognizes the decisions taken elsewhere by virtue of a principle of "mutual recognition" was deemed unsatisfactory for market harmonization.[34] These attempts have been undertaken by constituting a European agency for expertise on pharmaceuticals, the European Medicines Evaluation Products Agency, created in 1995 and renamed European Medicines Agency (EMA) in 2004. In this case, harmonization has not been conducted as a sudden replacement of national expert bodies by a centralized European epistemic authority. Instead, the agency introduced a centralized procedure for the authorization of medicines that was focused on innovative products and did not aim to replace the whole range of activities undertaken by national expert bodies.[35] Accordingly, the European approach is primarily based on coordination,[36] as member states can still decide on the authorization of medicines, and the EMA produces opinions that only become binding if member states do not agree with the initial recommendation for market authorization.[37]

The EMA is not the only European agency operating in such a distributed way. In the next chapter we will encounter the European Chemicals Agency, which has undertaken work that has been described, as the EMA could be, as an illustration of "epistemic subsidiarity,"[38] that is, an institutional arrangement whereby the production of expertise is the outcome of carefully orchestrated exchanges between European and national sources of expertise. At the EMA, epistemic subsidiarity implies boundary

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work between not only science and policy but also what is discussed at the European level and what remains within the scope of national policy choices. Because the EMA was designed to collect, produce, and use scientific knowledge, it was not meant to discuss health policy, including sensitive issues such as reimbursements whereby member states retained their capacity for action.[39]

As a distributed institutional construct, the EMA is not unusual in the landscape of European expertise agencies. The nature of the European agencies has interested some of the most famous scholars of European integration. Since the 1990s they have discussed the form of regulation "by information" that they propose,[40] how they are controlled,[41] the way they appear out of networks of European experts and function in conjunction with them,[42] and how certain institutional formats circulate from one technical domain to the next.[43] There would be little point in providing an exhaustive review of this rich research landscape. Here, I see the profusion of scholarly work about the institutional formats of European expertise as a sign of the uncertain nature of the articulation between technical advice and decision making within the European institutions. This uncertainty extends beyond the agency format and manifests itself in numerous controversies about seemingly arcane bureaucratic evolutions inside the EC. For instance, the relevance of the science adviser of the president of the EC, a position created in 2012 by José-Manuel Barroso, was intensely debated. NGOs have argued that this position added a layer of opacity to an already complex decision-making process and while allegedly aiming to ensure that European policy was "evidence-based" afforded industrial interests with privileged access to the president of the EC.[44] Others saw the NGOs' position as a mere reaction against the alleged pro-GMO position of Barroso's science adviser, Anne Glover.[45] Eventually the position was scrapped by Jean-Claude Junker, to the dismay of science policy scholars who had hoped to turn it into a vehicle for renewed dialogue about the relationships between science and policy in Europe.[46] This episode is revelatory and shows that if European expertise is based on an original institutional construct significantly redefining the sources of objectivity, it faces profound instability.

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CAN EUROPEAN EXPERTISE BE BASED ON THE VIEW FROM NOWHERE?

As illustrated by the case of the EMA, European expertise cannot be easily described as based on scientific knowledge purified from politics. The dream of an objective science at last freed from political considerations has remained alluring, though. This is partly a reaction to the issues originating from the pervasive uncertainty about the appropriate institutional format able to produce robust expertise and the possibility of close relations between expertise and industry that follow.[47] The allure of the dream of objectivity as well as the difficulty of institutionalizing it in European agencies is particularly visible in the case of the EFSA, the public body in charge of authorizing GMOs mentioned above.

The EFSA was created in 2002 as an institutional response to the bovine spongiform encephalopathy (BSE), or mad cow disease, crisis.[48] The crisis had propelled long-ranging reflection about how the EC based its action on scientific fact and how it used scientific expertise. The 2000 *White Paper on Food Safety* called for a European expert authority on food safety that could serve to prevent such crises as the mad cow scandal by ensuring that food products were properly assessed before circulating on the European market. The reorganization of European expertise on food safety eventually led to the creation of the EFSA, a centralized European expert body to identify the safety of food products for consumption across Europe.[49] Thanks to the new agency, European decision making would be isolated from the economic interests of particular member states and private actors. In situations where some member states were said to have influenced the delayed reaction to the BSE crisis,[50] the EFSA committees would be composed of individual experts rather than being based on national representation.[51] The EFSA, contrary to voices proclaiming the need for the agency to be granted regulatory power, was conceived as a public body whose power would be restricted to "risk assessment."[52] In short, it was intended to be the locus of a renewed European objectivity on food safety based on the ability to independently assess food products.

The objective of the new agency was to "restore trust" in the European institutions' ability to deal with technical risks. Restoring trust was expected to stem from the "strengthening of expertise and independence of scientific

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advice" and "the introduction of more transparency, consumer-oriented risk communication, and stakeholder involvement."[53] These objectives connected with wider issues raised at the EC in the early 2000s about "legitimacy and transparency"[54] and were explicitly discussed in the 2001 *White Paper on Governance* that became widely known.[55] Thus, the EFSA can be seen as part of the governance approach that the white paper advocated, whereby independent scientific advice, transparency, and stakeholder participation would ensure European decisions that were both scientifically sound and politically legitimate.[56]

In 2011 Herbert Budka, member and vice chair of the EFSA's Panel on Biological Hazards, described the creation of the EFSA as a "spectacular success-story" and a prime example of European institution building.[57] However, Budka might be the only one who ever described the EFSA as a success. The EFSA has been the topic of many debates pertaining to the quality of the scientific advice it provides, the transparency of its functioning, and its independence from special interests. Criticisms have been voiced by NGOs[58] about its proximity to industrial interests. The value of the EFSA's advice on GMOs has been heavily contested, as the standardized tests it used have themselves been controversial.[59] The GMO policy based on coexistence that I discussed above makes it possible for member states to ignore the EFSA's conclusions. If the EFSA's objective was to "restore trust," that goal has barely been reached.

Several transformations were introduced at the EFSA in response to this situation. The EFSA asked its experts to disclose their financial and institutional ties and launched a "glass house" policy of opening scientific meetings to the public in 2012. The EFSA also introduced a "stakeholder consultative platform" in 2005, tasked with "assist[ing] the Authority in developing its overall relations and policy with regard to 'civil society stakeholders,'" and launched several "public consultations."[60] This was consistent with a growing discourse of "democratization of expertise" adopted by the EC in the 2000s,[61] but it did not free the EFSA from public controversies. Endocrine disruptors have been just one instance of a controversial issue about which the EFSA's contributions have been severely criticized by environmental organizations.[62] Construed as an entity that could adjudicate controversies, the EFSA has itself become a topic of controversy.

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The difficult construction of European expertise through agencies such as the EFSA is telling and can be read as yet another example of contested science/policy boundary making in public institutions,[63] rendered even more difficult by the dual objective of ensuring that science is purified from political discussion *and* is open to public participation.[64] The EFSA might be an attempt to react to the plurality of expertise institutions in each European member states and the institutional response to a desire for centralized European expertise. But rather than providing a single authoritative voice able to ensure the legitimacy of European decisions, the EFSA has become perhaps the most visible illustration of the impossibility of insulating European expertise from political concerns.[65]

ALTERNATIVES?

The detour we took to the institutions of European expertise leads us to a problematic situation. If conceived in terms of the view from nowhere, European objectivity remains an elusive dream. In many situations technical expertise adopts more complex formats, which closely articulate the production of knowledge with the conduct of negotiations between member states and other stakeholders. In these cases, expertise is inherently tied to regulatory objectives on the one hand and to the concerns and needs of the actors involved in its production on the other hand. If there is a European objectivity it can be described as an "interested objectivity," which grounds both the production of technical advice and the representation of interested parties, be they member states or concerned stakeholders. The more complex formats where interested objectivity can be identified result in institutional uncertainty, and their sheer complexity makes them difficult to comprehend if not mechanically skewed for the benefit of the most skilled lobbyists.

We can now get back to the example of GMOs, with which I opened the discussion on European objectivity. Coexistence, as a principle of governing GMOs in Europe, can be situated within the wider context of the institutional format of the European expertise. This format makes the EFSA a central actor but does not see it as a unique source of epistemic

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authority, hence the critical position of those who hoped to see the EFSA as an adjudicator of scientific controversy. Coexistence also results in regulatory mechanisms whose complexity echoes that of European expertise more generally and that often fail to take scientific uncertainty into account, as the critique formulated by STS scholars shows.[66] Thus, coexistence is a perfect illustration of the quandary in which European expertise is situated, caught between a pervasive reference to objectivity imagined as being purified from political considerations and actual practices that might redefine objectivity in terms of interested objectivity yet in ways that are not always made explicit, particularly to those with fewer resources.

Due to these actual practices, coexistence also suggests that harmonization can be conducted in ways that are more subtle than the reference to the disentangled market or objectivity purified from political considerations. Michel Callon's account of the objective of coexistence for European GMOs offers a step in this direction.[67] Rather than an illustration of failed harmonization or a consequence of failed public dialogue about biotechnology in Europe, Callon sees coexistence as a locus of collective exploration. He argues that it could provide a path toward "a programme of collective investigation and research, intended to design and test market arrangements articulating economics and politics in a new way."[68] Callon's ability to turn innovation into a source of analytical and political intervention is evident here, as is as his faith in the possibility of opening up the construction of markets to democratic politics.[69] Because coexistence implies the impossibility of contesting the continuing development of GMOs in the first place, Callon's hopeful narrative of coexistence is not neutral. But neither are the accounts of biotechnology in Europe that see coexistence as a failure: they are used to argue for a closer market harmonization or for a radical redefinition of expertise.[70] Here, I want to use Callon's analysis of coexistence as an impetus to examine sites where science, policy, and the market are articulated in ways that reimagine disentangled markets and objective science and where analytical and political possibilities of envisioning European harmonization in alternative ways can be found. As the previous considerations suggest, objects that give rise to sociotechnical controversies are prime choices for locating these sites. Accordingly, the following chapters will explore examples

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of European objects where interested objectivity is critically examined and experimented with. By discussing examples related to energy, chemicals, and environmental issues, we will consider original propositions for a European objectivity, which significantly differ from the view from nowhere and also result in forms of harmonization that reconfigure the dream of the disentangled market.

Some of the examples in the previous chapters can also be discussed in those terms. Consider, for instance, the ways in which the protection of the geographical origins of food products makes it possible to grant regulatory strength to the notion of terroir. Sociologist Geneviève Teil sees in terroir an "alternative objectivity," which characterizes food products in connection with their processes of production and the experience of producers and amateurs.[71] A wine will be from a particular terroir, labeled as such and recognized as such by professionals and amateurs because of their intimate knowledge of the local conditions of production. In Teil's account, this way of evaluating objects is indeed "alternative" because food products are described not by measurable physical or chemical criteria thought as independent from human subjects but instead by the connections of these products with the economic and taste interests of local producers and consumers. Terroir, as it is included in the European regulation of geographical origin, might provide an additional path for a European objectivity defined in terms of interested objectivity.

EXTERNAL PRESSURES

At this stage, we start to envision that technical objects in need of scientific examination might provide an impetus for imagining harmonization in more nuanced terms than the all too simple dream of an objectivity purified from public concerns. Some of the examples we encountered so far, such as GMOs and pharmaceutical products, seem to point to an important price to pay, namely an institutional work that seems far from complete. This latter dimension prevents us from being naive about the strength of alternative propositions for European objectivity. We should not think about interested objectivity in isolation, whether it originates from coexistence, terroir, or other domains of regulatory interventions. We need to question the institutional construct that could make interested

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objectivity possible and the consequences it has for both the actors involved and the objects at stake. Nor should we ignore the external pressures that make it difficult to turn interested objectivity into institutionalized and well-recognized practices.

The example of terroir offers an illustration of the external pressures that any attempt at articulating a European objectivity has to face, for if terroir may indeed suggest that objectivity can be phrased in other terms than the view from nowhere, this has not been consensual in international settings. Non-European countries have been critical of the European protection of geographic origin, and scholars have talked about the "war on terroir" to describe the opposition to the European protection of local products.[72] At the World Trade Organization (WTO), the United States has argued that European protections of geographic origin were intended primarily to protect the European market against external producers. On the European side, the protection of origin has been described as a way of informing the consumer and ensuring the validity of quality labels for food products by inserting local characteristics in the regulatory description of such products.[73] The opposition between critics and proponents of terroir has cultural and economic dimensions. At the WTO this opposition was also based on scientific arguments, as critics of the European regulation questioned the objective difference of local food products from equivalents produced elsewhere. In this critical position, "objectivity" had nothing to do with the interested objectivity that terroir proposes. Rather, it was about differentiating food products according to well-defined physical and chemical criteria.

This conflict of objectivity was eventually resolved through a compromise. In 2005 the WTO settlement established that the European regulation discriminated against Australian and US producers, although it was said to be "essentially compatible" with WTO rules. The regulation eventually had to be clarified to allow non-European actors to apply to the EC for registration;[74] in other words, the European system of protection opened itself to third-party countries.[75] But in other cases, the European position failed to convince the WTO of its scientific grounds. This has been the case for GMOs, as the bans on certain GMOs introduced into Europe were contested at the WTO by Argentina, Canada, and the United States.[76] The opponents of the European regulation considered that the

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evaluation of risks should be the product of a universal science expected to serve as a reference in international trade conflicts. They claimed that the European ban was based on a lack of scientific evidence[77] and was nothing but a strategic move intended solely to protect the interests of European farmers at the expense of international trade. As in the war on terroir, one can regard the opposition less as a confrontation between scientific arguments and a political position and more as one between two ways of defining what counts as evidence and how to make decisions in situations of uncertainty. The opposition about GMOs at the WTO can be seen as yet another conflict of objectivity. As STS scholars have shown, the challengers of the European ban imagined objectivity as the outcome of mechanistic processes able to eliminate uncertainty and to stabilize a technical assessment of risks freed from political considerations.[78] By contrast, the European ban could also be framed as an attempt to deal with pervasive uncertainties about both the scientific evaluation of GMOs and the social expectations about them. That Argentina, Canada, and the United States won their case against Europe is a sign that this alternative framing failed to be articulated in convincing ways.

The international pressure to adapt to a standard of proof that implicitly adopts a definition of objectivity at odds with European policies has been a pervasive trope in biotechnology regulation. Some cases have shown that the European institutions sometimes adapt to this pressure. Consider, for instance, the international challenges to the European bans of recombinant growth bovine hormone (rGBH) as they have been analyzed by sociologists Daniel Kleinman and Abby Kinchy.[79] A first ban on rGBH passed in 1995, and then the European Council passed a series of moratoria, eventually banning rGBH permanently in January 2000. The initial arguments for this reluctance to introduce rGBH on the European market had much to do with the economic situation of farmers. In 1990, the EC and the European Council had considered that reviewing the situation would take time, given that "products arising from milk production occupy a very important place in the Community" because they are "an essential source of income for part of the agricultural population."[80] The effect of increased productivity on the price stability of agricultural products was then an important concern.[81] But the persistent challenges to the European regulation at the WTO resulted in changes in the European

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rationale for banning rGBH. The 1994 extension of the moratorium used scientific arguments about animal welfare as justification. In 1999 the ban was said to be "exclusively motivated by reasons of animal welfare and health," which were then described as "ostensibly objective, scientific concerns."[82] The pressure from the WTO made the European regulation frame its interventions in terms that could be construed as scientific ("animal welfare") and could not be criticized as being motivated by considerations related to the political economy of European agriculture.

At the WTO international pressure forced Europe to adopt scientific arguments, as the organization required "sufficient scientific evidence" to accept regulatory measures.[83] In some cases (such as rGBH), European institutions adopt the language expected by the international organization. In other cases (such as GMOs), they fail to both adapt to external pressures and articulate alternatives that would convince international audiences that Europe can build an objective voice of its own.

IS ANOTHER OBJECTIVITY POSSIBLE?

This chapter has looked at cases—of which GMOs might be a prime example—in which scientific objectivity is explicitly sought after and imagined as a necessary ingredient in the European regulatory machinery, no less because it could ensure the smooth functioning of markets where well-known objects circulate and from which the most hazardous ones are excluded. In this ideal vision, European objectivity and the disentangled market would reinforce each other and would ensure that scientific expertise and market organization are well-run and uncontroversial technical matters.

But we saw that problematizing European objects as entities in need of a scientific assessment conducted by a centralized European epistemic authority is highly problematic. While reference to the market provides precious resources for harmonization (as the previous chapters have shown), science is a more complex matter. The pervasive problem of the institutional format that European expertise is supposed to take can be rephrased accordingly. The rich empirical and theoretical explorations of political scientists and European scholars have shown the variety of the agency format and the uncertain constitutional role of expertise in Europe. This situation is a sign that European objects for which scientific

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expertise is required might give rise to propositions for European objectivity that do not phrase it in terms of the view from nowhere but can instead be described as manifestations of an interested objectivity. Interested objectivity sees objects as explicit political entities and consequently closely articulates scientific evaluations and collective negotiations. This has consequences for how markets are organized. Coexistence, for instance, means that the dream of a single harmonized market of GMOs has been abandoned, as various markets of GM and non-GM products coexist and member states are free to ban GMOs. The uncertainties and controversies about scientific matters force a rewriting of the dream of objectivity and reentangling markets with public concerns, whether expressed as national preferences or political advocacy. Interested objectivity and the notion of concerned markets that we encountered in the previous chapters allow us to start this reflection.

Perhaps because of its originality, interested objectivity faces pervasive instabilities and is regularly confronted with the persistent allure of the view from nowhere, as the example of the EFSA shows. There are two potential readings of this situation. The first one diagnoses a persistent failure to ensure that a true European expertise can convince member states and possibly the European public at large of its value. This reading sees a need for yet other attempts at stabilizing a centralized body of European expertise, which at last would be able to provide a unified voice of science. The second reading also identifies a failure, although not in the same terms. This reading sees the processes that I described as manifestations of interested objectivity as ways of recognizing that the production of expert advice is a scientific and political process but is not always explicitly described as such. In this reading, the specificities of European expertise are not to be erased but instead are to be further cultivated. If there is a failure, it is related to the inability to publicly describe expertise in specific European terms in ways that would convince international audiences (for instance, at the WTO) and European ones that it can be scientifically robust and politically legitimate. At this point, the failure of the EFSA to provide a European view from nowhere is a forceful reminder of the limited value of calling for an unproblematized objective expertise to solve the issues faced by European expertise. By contrast, what the instability of European expertise and its contestations in international settings make visible is the dual

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necessity of an analytical repertoire and institutional support to ensure the scientific and political robustness of interested objectivity.

This discussion is not only a matter of institutional machinery. It is directly related to the current concerns for public trust in expertise, recently voiced about vaccination during the COVID-19 pandemic but pervasive in liberal democracies since Donald Trump's election and the Brexit referendum. In situations of public controversies, and even more so when the legitimacy of expert institutions seems to be contested, the call for science is often heard, and is meant to counter what is phrased as "populism" and seen as a threat to the democratic institutions. But this call for science is only partly satisfactory if it ignores the deeper constitutional issues that controversies about science and expertise signal, about how to connect technological advances with public concerns, how collective priorities are chosen, and whose voices and interests public institutions represent. Usually construed in connection with various concerns and interests, European expertise can provide resources to develop more sophisticated approaches than the reference to science imagined as purified from external influences, and to explore the constitutional conditions for public trust. Interested objectivity, if taken seriously, can make Europe a laboratory for a reflection that has profound implications for contemporary democracies, and European objects a vehicle to do so.

The following chapters will extend this reflection by studying European objects for which the production of European objectivity has been challenging. They will discuss chemicals, the European environment, and nuclear and financial risks. All these cases have required technical expertise, often in relation to the organization of markets, and provide illustrations of various practices that in many instances entangle technical examinations and collective negotiations, market organizations, and the expression of public concerns. As such, these cases challenge the dreams of the disentangled market and that of an objective science purified from political interests. It remains to be seen whether these challenges can offer paths for grounding interested objectivity, rethinking markets as concerned markets, and ultimately envisioning alternative types of harmonization. If so, whether or not these paths are made explicit and used as sources for reimagining the dreams of the disentangled market and purified science will be yet another question to examine.

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6

REGULATORY PRECAUTION

PRECAUTION AND CHEMICALS

The precautionary principle was enshrined in the 1992 Maastricht Treaty and has been mentioned in numerous European regulations since then. It has been the topic of many academic and policy debates pertaining to both its practical consequences and its philosophical underpinnings. Some analysts close to industry circles are critical of the use of precaution within European institutions.[1] Others see it as the signal of a turnaround by European institutions, which they claim have become more sensitive to risk management than their American counterparts.[2] The fact that these debates were never concluded can be connected to the pervasive issue of European objectivity. The precautionary principle challenges the ways in which policy action can and should use scientific knowledge to control potential risks. The principle necessarily relies on an epistemic authority—the very authority that has been particularly problematic in Europe, as we saw in chapter 5. As the European Commission (EC) itself has explicitly shown, the precautionary principle implies a redefinition of the relations between science and policy making in European institutions.[3] In the language of the EC it is seen as "a basis for action when science is unable to give a clear answer"[4] and possibly as a path toward rethinking the ways in which public facts are crafted.[5]

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In this chapter, I discuss the practical consequences of precaution for the problematization of European objects and European intervention and focus on a problematic set of European objects, namely chemicals.[6] Chemicals constitute a large domain of industrial and regulatory activity in Europe and a problematic one. How can the sufficient safety of chemicals be ensured? How do we identify and ban the most hazardous ones? Answers to these questions have been controversial, as some lament the burden of strong regulatory measures, while others see a persistent inability to ban hazardous substances. The stakes are high for the actors involved, as the intense lobbying activities around European chemical policy amply attest. The main element of the European regulation of chemicals came into force in 2006. Called the REACH (Registration, Evaluation and Authorization of Chemicals) regulation, it was said to have "generated one of the bitterest and most expensive lobbying campaigns the European establishment in Brussels has ever seen," as an article in the *New York Times* reported at the time.[7] Companies feared the increased costs of additional tests to perform, while nongovernmental organizations (NGOs) saw opportunities for developing more constraining regulations. Since then, the European regulation of chemicals has had important effects on industrial actors, who have had to perform numerous additional tests and have seen some substances eliminated from the European market. In some cases, the European interventions on chemicals consist of turning them into market entities allowed for circulation in ways designed to limit their risks.

Chemicals were the first European objects I came to study. As I was doing fieldwork on nanotechnology policies in 2008–2011, I regularly encountered the problem of nanomaterials. The definition of regulatory categories for chemicals that have new properties because of their small sizes was (and still is) hotly debated. These categories would cut across existing ones. In a situation of pervasive uncertainty about the appropriate metrological apparatus and the relevant appraisal of uncertain hazards, defining these categories has been a legal and technical problem, an issue about which lawyers and scientists have been disagreeing. This case is particularly telling, and I will come back to it in this chapter. The case is a magnifying lens of the issues at stake when turning chemicals into

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European objects: How do we introduce meaningful regulatory categories able to describe the chemicals at stake and provide relevant channels for policy interventions? After nanomaterials, I continued my exploration of European chemicals as I worked with colleagues on research projects and participated in an expert group at the French public agency in charge of chemicals' risks.[8] Again, the question of the appropriate categories for controversial chemicals such as phthalates, flame retardants, and endocrine disruptors was regularly raised. Building on these cases, this chapter will analyze a dominant answer to the problem of chemicals' regulatory categories. This answer involves conducting a case-by-case examination of various chemicals and their uses with the hope that the precautionary principle will then be incorporated into regulatory work. In doing so, the case-by-case approach manipulates the regulatory constraints with great care. Henri Boullier and I have called this approach "regulatory precaution" to point to a dual dimension: being precautionary about the risks of the substances and being precautionary about the use of regulatory constraints.[9] Because regulatory precaution relates to the definition of the chemicals themselves and to the appropriate expertise needed to feed a would-be legitimate legal action, it can be seen as an illustration of what the previous chapter labeled "interested objectivity." This chapter will demonstrate that this approach is not consensual. The pervasive difficulties that regulatory precaution encounters reveal both the existence of potential paths for considering chemicals as uncertain objects worthy of collective examination and the weakness of the institutional apparatus in charge of conducting this examination.

TURNING CHEMICALS INTO EUROPEAN MARKET OBJECTS

Where are chemicals dealt with in European regulation? The specific piece of European legislation dealing with chemicals is the REACH regulation. Heralded when it was released in 2006 as "the most ambitious piece of European legislation" and "the largest single reform of market regulation undertaken to date,"[10] REACH introduced legal processes that each company producing or using chemicals had to follow. The regulation stated that its provisions were "underpinned by the precautionary principle."[11] While explicit reference to the principle was criticized by actors close to

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the industry,[12] it was also met with skepticism by critics who considered that REACH failed to act against the interests of industrial actors in situations of scientific uncertainty about potential risks.[13] These contrasting criticisms saw the REACH regulation as a policy instrument with problematic relations with the European chemicals market: the former considered that the regulation was too restrictive, while the latter maintained that it failed in significant ways to act against risks. Both saw the REACH regulation as an instrument acting *on* the European chemicals market.

This reading works relatively well for a range of provisions of the REACH regulation, namely the processes through which substances are supposed to be excluded from the European market. Before I come back to these processes later in this chapter, it is important to note that the main thrust of the REACH regulation might, however, be better described as a device meant to organize the market primarily by stating the characteristics that all chemicals need to follow to be granted the ability to circulate throughout Europe. REACH, for that matter, is less an intervention *on* a preexisting market than a tool for *constituting* a European chemicals market, where well-defined objects are expected to be exchanged by well-informed economic agents. In doing so, the objective of REACH is similar to that of other pieces of regulation also impacting chemicals, such as the cosmetic regulation,[14] the biocide regulation,[15] and the novel food directive.[16] All these texts seek to characterize economic objects for circulation on the European market. They share an objective of harmonization through the organization of the European chemicals market.

Within REACH, this objective is implemented through a regulatory process known as registration. To register a substance, companies need to submit dossiers to the European Chemicals Agency (ECHA), created to implement the REACH regulation.[17] The dossiers contain technical information describing the substance and its properties in addition to a "chemical safety report," including "a detailed summary of information on the environmental and human health hazard properties of the substance, together with an assessment of exposure and risk where such an assessment is required."[18] The principle underpinning the procedure is "no data, no market," meaning that the public bodies need to be provided with data before granting authorization for a given substance to circulate on the European market.

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The registration process supposes that regulatory categories are used to define which chemicals need new dossiers and which can be grouped together and thereby considered identical from the regulatory viewpoint. The stakes are high for industrial companies. They might be tempted to group together various substances under a single general heading (e.g., carbon nanotubes under a more general "carbon" category) to minimize the testing and administrative costs of adding new dossiers. Accordingly, many of the debates about registration in REACH have dealt with the extent to which companies could consider that different substances were in fact the same and could therefore be registered under the same dossier. Those debates display the inner politics of category making at the heart of the registration procedure. This politics relates to the conflicting views of, on the one hand, regulators in charge of ensuring that the risks of chemicals are known and, on the other hand, companies defending their economic interests in arguing for or against new regulatory categories for the chemicals they produce. The politics of category making extends beyond a clash of conflicting interests, though; it is tied to the materiality of chemicals and the very logic of industrial innovation. As historian and philosopher of science Bernadette Bensaude-Vincent puts it, chemistry is an "impure science" constantly associating expected new properties and emerging characteristics of the substances at stake.[19] In industrial contexts, this means that companies are permanently in search of new properties and ceaselessly produce new substances only known by these properties. Chemicals proliferate as companies tinker with their production processes to come up with new properties and might not even be aware of the ways in which their inner characteristics are different from already known substances.

MAKING REGULATORY CATEGORIES ON A CASE-BY-CASE BASIS

The ECHA produces guideline documents to help companies and regulators in the writing and evaluating of dossiers. These documents mention the various criteria that can be used to identify a substance, such as atomic composition or crystalline structure, but the stated criteria might not be enough to decide on problematic situations. The example of nanomaterials that I have been interested in for the past few years is

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particularly relevant for understanding these situations. Broadly speaking, nanomaterials cover the set of substances that acquire new properties because of the small size of their components. For instance, the optical properties of titanium dioxide at the nanoscale makes it attractive to companies developing cosmetics, the biocide properties of silver nanoparticles have been used by the food industry as additives to packaging, and carbon nanotubes have become regularly used in various construction materials. The enhanced properties of nanomaterials have raised questions regarding potential toxicological effects, which would differ from the nonnano counterparts of nanomaterials.

While widely used, the label "nanomaterials" is itself problematic. Whether or not to create a new regulatory category for nanomaterials has been a sensitive issue in Europe. In 2008, the EC had stated that no new "nano" category should be created in European law and that it would suffice to apply REACH to nanomaterials.[20] The EC considered that a case-by-case approach had to be adopted in which the registration of nanomaterials would be considered no differently from that of any other substance. The case-by-case approach consists of examining, for each substance at the nanoscale, whether it can be identified with an existing substance or whether it should be registered separately as a new entity. For instance, whether or not nanoscale titanium dioxide is equivalent to regular titanium dioxide and does not require a new dossier or whether silver nanoparticles are equivalent to silver particles would then be examined.

In practice, the task of officials at the ECHA in charge of evaluating registration dossiers and implementing this case-by-case approach is not easy. When I met him for an interview, an official at the ECHA in charge of the implementation of REACH for nanomaterials talked about the quandary in which he was caught with the case of titanium dioxide.[21] He needed to know, for instance, whether titanium dioxide at the nanoscale was different from regular titanium dioxide and indeed what "different" meant. The guidance documents produced by the ECHA were of little help for him. These documents do mention various criteria that can be used to identify a substance, but size is not one of them. The official wondered whether he should take risk-related properties (such as specific surface area) into account to differentiate between titanium dioxide at the nanoscale and regular titanium dioxide. He continued with other examples. There was

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an infinite variety of carbon nanotubes: they can be flexible or rigid with a double or multiple inner wall, differing lengths, and so on. All these differences influenced the risk profile, and he spent hours examining whether a given nanotube had to be registered separately or whether it could be registered with others. This question has also been an issue that companies wonder about when they produce many nanotubes for diverse industrial applications, with variable physicochemical characteristics.[22] So far no uniform answer exists for nanomaterials, and each of them is examined at the ECHA in conversation with national public experts and industry representatives.[23]

The example of nanomaterials is a telling illustration of the case-by-case approach that is at the core of the European regulation of chemicals. The case-by-case approach means that the European expert bodies engage in an endless examination of various substances. This examination is conducted by multiple working groups in which various stakeholders, including experts from member states and private companies, are involved. Nanomaterials are thus an almost perfect manifestation of the politics of uncertainty at the heart of the European regulation of chemicals.[24] Uncertainty about the technical characteristics of substances and about the interests of stakeholders is dealt with through collective discussions between national and European public and private experts. Expertise is not expected to be the outcome of a single centralized European body (as the ECHA could be), but it acquires its European character because it stems from this collective work. The particularities of the European regulation of chemicals can be better understood when compared with the situation in the United States. There, the regulation of chemicals is characterized by the importance of science-based expertise, as agencies such as the Environmental Protection Agency and the Food and Drug Administration are asked to provide technical assessments of substances.[25] The fact that public bodies in the United States need to demonstrate hazards before introducing restrictions affecting companies has spurred lengthy debates about whether or not bias was present. The European approach to the expertise on chemicals is significantly different. First, the ECHA is less a centralized body of expertise than a coordinator in charge of gathering information from both industrial companies and member states. A major change introduced in REACH was that the onus of proof was henceforth on companies, which

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had to demonstrate the safety of their substances. The European agency's role was then only to monitor the process and validate the demonstration. The coordination role of the ECHA also manifests itself when considering the numerous interactions between member states' "competent authorities" and the European level. This situation has been described as "epistemic subsidiarity" to highlight the fact that the production of knowledge, less than centralized in a unique European body of expertise, is distributed across member states.[26] Second, the mode of intervention in the US regulatory system articulates the pervasive reference to science as a resource expected to be external to policy considerations and the negotiations of interests. By contrast, rather than delegating the manufacture of expertise to a centralized provider of an expertise meant to be detached from public concerns, REACH distributes the participation in knowledge production across a wide range of actors. This is why REACH has been described as a "hybrid" instrument of governance, or an illustration of the "experimental governance" that the European approach to regulation is said to be.[27]

These terms are used by political scientists to point to the fact that roles and responsibilities are distributed between European institutions, member states, and private actors; that collective negotiations are preferred to direct command-and-control approaches to regulation; and that regulatory decisions are considered open to revision. In practice this means that chemicals are discussed in expert groups, which in problematic situations such as that of nanomaterials are multiplied for each of the cases. The discussions that are then undertaken in these arenas cause regulatory categories (i.e., the various cases of the case-by-case approach) to proliferate, since each new registration might lead to a new case and new technical explorations. Moreover, the arenas of collective discussion also proliferate, which impacts the possibility of the actors involved to gain access to information or to mobilize enough resources to participate in a growing number of discussion groups. The proliferation of cases has a politics in the sense that not every actor can navigate this complex regulatory landscape. This goes hand in hand with a problematization of European objects as issues of ongoing collective evaluation of uncertainty, bound to a state of perpetual refinement.

Among the actors involved, the ECHA officials play a crucial role but a difficult one that depends on the information provided by the companies

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seeking registration. The example of nanomaterials provides telling illustrations of the consequences of the politics of uncertainty at the heart of the European regulation of chemicals. For instance, the ECHA has been trying to ask companies for information on the nano characteristics of the substances they produce, and this request has been controversial. Some industries challenged a decision taken in 2014 by the ECHA, which had asked companies registering titanium dioxide "to submit information related to phases, nanoforms and surface treatment of nanoforms"—all elements that can be used to differentiate among various cases of titanium dioxide. The ECHA Board of Appeal annulled the ECHA decision on the grounds that the agency could not interpret REACH's annex to ask companies for information about nano characteristics.[28] The ECHA's reaction was not positive:

> If the scope of the registration cannot be clarified, then the potential data gaps cannot properly be assessed and the basic hazard data cannot be effectively requested. . . . In the current situation ECHA cannot effectively and systematically verify whether safe use of nanomaterials in the supply chain is demonstrated, and whether additional regulatory risk management measures are needed.[29]

This resigned statement might be the latest illustration of the difficulties of the case-by-case approach. Faced with the proliferation of cases, the ECHA needs an endless flow of technical information that it struggles to gather because it lacks the legal strength to do so.

REGULATORY PRECAUTION

Rather than neatly defining European objects once and for all, the case-by-case approach causes regulatory categories and arenas of collective discussion to proliferate. What this proliferation entails is visible when considering the reactions to it. Again, nanomaterials offer a telling illustration. The case-by-case approach has been criticized by the Brussels-based European Environmental Bureau (EEB), to which various European environmental organizations belong. The EEB has called for a broad new category for nanomaterials[30]—in its view the only way to adequately regulate them. This is precisely what the European Parliament did. After having stated that it "did not agree . . . with the Commission's conclusions that current legislation covers in principle the relevant risks relating to nanomaterials,"[31] the European Parliament introduced new regulatory

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categories for nanomaterials in fields not covered by REACH, notably biocides, food, and cosmetics.[32] For instance, an amendment was added to the cosmetics regulations requiring companies to mention "nano" in the list of ingredients of products containing nanomaterials,[33] defined as follows: "'nanomaterial' means an insoluble or biopersistent and intentionally manufactured material with one or more external dimensions, or an internal structure, on the scale from 1 to 100 nm."[34]

Legal definitions of nanomaterials also came from member states. In 2012, France became the first country in the world to introduce a mandatory declaration of nanomaterials for companies operating on its territory.[35] France introduced the term "substances in a nanoparticulate state" to denote materials that have the ability to disperse nanoparticles in the environment.[36] As it introduced this definition, the French public administration tried to connect the definition of materials with potential negative effects on the environment. This was the rationale for including in the definition all the materials that could release nanoparticles in the environment.

What these initiatives have in common is that they introduce legal constrains based on clearly stated and broad definitions. They have been criticized for technical and legal reasons by people wondering how to make sure that the 100nm size limit was appropriately measured and, more generally, by those who considered that the criteria that France and the European Parliament introduced were partly arbitrary, targeting a wide set of substances of unknown hazards while still offering many possibilities to avoid the legal constraint.[37] But the broad definitions that the European Parliament and member states introduced also help us to understand, by contrast, the particularities of the case-by-case approach. Instead of introducing broad categories in legal texts, the case-by-case approach manipulates the regulatory constraint with great care. Instead of dealing with uncertainty by deciding once and for all on certain criteria, the case-by-case approach cultivates uncertainty in the exploration of a never-ending list of cases.

The case-by-case approach implies that one explore the infinite variety of descriptors of substances and the infinite variety of exposure scenarios. The example of nanomaterials is particularly telling at this point and is an illustration of a problematization of European objects in the language of the precautionary principle. The approach undertaken is precautionary in that it requires the relentless exploration of uncertainties

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in various collective settings. Yet it is also precautionary in that it is careful with the manipulation of the legal instruments in introducing new categories or new constraints to industries. The expression "regulatory precaution" points to this dual dimension. Regulatory precaution means that uncertainty is the topic of collective exploration, as it is conducted in the groups of experts from European member state agencies and private companies. This has important consequences in terms of who has the resources to participate in so many arenas of negotiations and who controls the production of knowledge. Within REACH, companies are in charge of producing and submitting technical information and have far more resources to engage in the technical examinations of cases than do environmental NGOs, if only because as producers they have direct access to the substances at stake. Another related consequence is linked to the politics of uncertainty at the heart of the European regulation of chemicals. Regulatory precaution also implies that uncertainty is actively maintained, since it results in adding new explorations instead of creating new regulatory categories that would be constraining for industrial actors. Regulatory precaution does not offer a clear means for transitioning from proliferating cases to constraining regulatory decisions.

This has consequences for the type of European epistemic and political authority. Propositions such as France's "substances at the nanoparticulate state" and the European Parliament's definitions of nanomaterials suppose that the regulation of chemicals has the power to craft a new regulatory entity. By contrast, the European experts at the ECHA are caught in countless discussions about each of the cases they examine. While regulatory precaution might offer a practical way of conducting a collective exploration of various cases, opening up this collection exploration to concerned publics and ensuring that it can lead to meaningful regulatory decisions would require significant institutional work.

EXCLUDING HAZARDOUS SUBSTANCES FROM THE MARKET?

While nanomaterials are sometimes discussed in press articles and have attracted the attention of environmental organizations,[38] discussions about the many cases used to describe them are confined to the working groups related to the REACH regulation. The fact that regulatory precaution entails

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a multiplication of those arenas of discussion further relegates the debate about nanomaterials to the arcane circles of European regulation.[39] There are other chemicals, however, that are publicly discussed and have become the topic of very public controversies relating to the potential exclusion of these chemicals from the European market. Discussions about phthalates, flame retardants, glyphosate, and endocrine disruptors have been ongoing in Europe for years; they have revolved around the contested authorization or ban of these substances. With these chemicals, we seem to be in a situation whereby public regulation is expected to act against market forces by excluding substances at the expense of industrial interests. Thus, while the major thrust of REACH-related activities is the registration of chemicals (and their transformation into legitimate market objects), the European regulation of chemicals also contains procedures meant to ban substances from the European market. Other regulatory texts, such as those related to pesticides, also offer channels for banning chemicals.

Banning chemicals is often controversial, and the controversies adopt a regular pattern. On the one hand, critical voices identify the unmistakable influence of the industrial lobbies and the reluctance to exclude certain substances from the market.[40] On the other hand, industrial actors often lament decisions that would target substances without considering the variety of their uses and the presence (or absence) of substitutes.[41] This opposition maps onto another one, between hazard-based and risk-based approaches. The former considers that some substances are hazardous no matter what and should be unconditionally banned, while the latter argues for examining the situation of exposure to a given substance before stating whether or not it should be regulated and how. The next few pages consider examples of substances that have been discussed in those terms. I show that the attempts at banning substances (and at following a line resembling the hazard-based approach) are rarely successful. Instead, various exemptions are drawn, and the eventual regulatory choices are closer to a risk-based approach. This situation might question the overall validity of the opposition between hazard-based and risk-based. I will show that it is also a sign of the pervasiveness of regulatory precaution in the world of chemicals even in situations where constraining bans related to stable legal categories seem to be the goal.

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Targeting substances that will be excluded from the European market can be done in REACH in conjunction with other regulatory texts that define classes of substances considered dangerous. Thus, the Dangerous Substance Directive of 1967[42] introduced labeling requirements comprising the mandatory use of hazard symbols. A nomenclature was then introduced with categories such as "explosives," "flammable substances," "toxic substances," and "irritants." These categories were associated with chemical hazard symbols to be used on labels, such as "E" for explosive and "T" for toxic.[43] The 1967 directive was later refined and reexamined. Its latest occurrence is the 2008 Classification, Labelling and Packing (CLP) Regulation, which works in tandem with REACH.[44]

Within REACH, substances deemed to be "of very high concern," known by their acronym SVHC, are defined according to their adverse properties for human health or the environment. They comprise substances that are "carcinogenic, mutagenic and toxic for reproduction" (CMRs) and "persisting, bio-accumulative and toxic" (PBTs) as well as "substances of equivalent concern." The SVHCs comprise the substances listed in the CLP regulation. REACH states that they can be included on a "candidate list," which is a first step for these substances to be included in REACH's Annex XIV. Annex XIV lists substances that are banned from the European Union unless companies apply for authorization for a specific use and this is granted.

The approach to regulatory categories here is different from what we encountered in the case of nanomaterials. Rather than the endless examination of the technical identities of substances, the core of the regulatory intervention is based on the hazardous properties of SVHCs. Contrary to the registration of nanomaterials, defining substances as being of very high concern seems to follow the hazard-based approach. Irrespective of how they are used, the regulatory text considers that these substances are dangerous and should be regulated. But the practical details of how they become regulated entities show that the distinction between hazard-based and risk-based is not that simple. Although certain substances (such as CMRs) have been automatically included in the candidate list, this is not the case for many.[45] While environmental organizations have been arguing for including all SVHCs in the candidate list, in practice member states and the EC have taken into account the volumes of use, the nature of exposure, and the type of use.[46] In other words, SVHCs are rarely considered to be

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intrinsically hazardous and as such worthy of regulation. One can also see here a variation on the case-by-case approach that I introduced above. Instead of banning substances that would be considered hazardous no matter what, the logic consists of examining various cases of exposure and use. This situation is regularly criticized by environmental organizations, as some of them consider that the candidate list is "a drop in the ocean" of the chemicals that should be restricted.[47]

PHTALATES AND AUTHORIZING "SUBSTANCES IN THEIR USE"

As I studied chemicals in various research projects, I initially thought that banning substances considered intrinsically hazardous could be construed in opposition to the case-by-case approach that nanomaterials illustrate so well. But the more I looked into examples such as SVHCs, the more case by case seemed to be the usual practice. Henri Boullier and I used one of these examples, phthalates, to identify yet other sites where chemicals are governed by regulatory precaution.[48] These substances have relatively well-known hazards yet are found in many sectors, from construction to medical equipment, and are present in numerous consumer products containing plastics. The three phtalates most frequently used (DEHP, DBP, and BBP) were included in REACH's Annex XIV in 2011 for an effective ban starting in 2015.[49] The ban, however, left room for adaptation. The very logic of "authorization" (in the legal sense of the term) is at play here. First, imported manufactured products are not covered by the procedure ("articles" in REACH's legal vocabulary),[50] a particularly common situation in the case of phthalates. Second, many uses have in fact been authorized after phtalates were included in Annex XIV. This situation was explicitly questioned at the European Parliament in 2011, when its members complained about the lack of clarity in regulations on the use of phtalates in toys.[51] Members of the European Parliament were concerned by the possibilities of authorizing phtalates in a field (toys) that before the introduction of REACH had been subject to specific restrictions. In response to the questions raised by these members, the EC claimed that "a total prohibition without any possibility of exemption would be neither justifiable nor realistic" and that the evaluation of phtalates had to be "case by case, on the basis of scientific information available for

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each substance."[52] This statement was in perfect alignment with the legal text: "Uses or categories of uses may be exempted from the authorisation requirement provided that, on the basis of the existing specific Community legislation . . . , the risk is properly controlled."[53]

Phtalates enter the European regulation not as substances considered to be intrinsically hazardous but instead as substances that should be examined according to specific cases of use, in other words "substances in their uses." Thus, phtalate risk assessment reports, submitted by companies that apply for authorization, examine different exposure scenarios for workers, consumers, and people exposed via the environment[54] corresponding to different risk levels. Like the examination of the various cases of nanomaterials registration, the various uses of phthalates are discussed with the actors involved, including above all the companies wishing to use the substances. This leads to the authorization of certain uses on the grounds that the risk is properly controlled.

While phthalates seemed to have been banned, the practical conduct of the regulatory work targeted substances in their uses and reestablished a case-by-case approach. Here again, regulatory precaution means that precaution is implemented through regulatory instruments, and that regulatory constraint is manipulated with precaution. And in the case of phthalates, as in those discussed above, it is countered by initiatives from member states. Consider, for example, a bill submitted to the French Parliament in 2011 to "ban the use of phthalates, parabens and alkylphenols."[55] Centrist member of the French National Assembly Yvan Lachaud was rapporteur of the bill and announced the motives for this initiative: "REACH is less ambitious than originally planned. . . . Please, let's not start making the same mistakes as with asbestos and glycol ethers! Whenever we cannot control the sanitary effects of these molecules, we should apply the precautionary principle."[56]

Here, applying the precautionary principle does not have the same implications as in European circles, where regulatory precaution is the rule. In counterinitiatives such as the proposed French bill, applying the precautionary principle consists of banning phthalates once and for all by means of regulatory constraints, which Lachaud described as being "more ambitious" than REACH. By contrast, the authorization procedure as mobilized in the case of phthalates is entirely consistent with

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regulatory precaution, which supposes a detailed examination of various cases while greatly limiting the introduction of regulatory constraints.

DECABROMODIPHENYL ETHER AND THE POLITICS OF EXEMPTION

The example of phthalates illustrates the reappearance of regulatory precaution in situations where a hazard-based approach could be expected. I encountered a similar dynamic when I examined another problematic substance, decabromodiphenyl ether (decaBDE). DecaBDE had been used for decades as a flame retardant, meaning that it has been added in consumer products such as toys, clothes, and furniture on the grounds that it could slow the propagation of fire. Like other flame retardants, decaBDE's alleged beneficial properties have been controversial for years, and the health hazards that decaBDE causes have been a growing source of public concern. And like other flame retardants, decaBDE has been the target of intense lobbying activities from industry in the United States and Europe.[57] In February 2017 the EC announced that decaBDE was included in REACH's Annex XVII, which lists the substances that are "restricted," meaning they are prohibited on the European market for the uses listed in the annex. The amendment to REACH's Annex XVII banned the use of decaBDE as a substance and limited the content of decaBDE in products to 0.1 percent.[58] As indicated in the expert reports that argued for the inclusion of decaBDE in REACH's Annex XVII, restriction was much more constraining than the authorization procedure that was followed in the case of phthalates.[59] At last, decaBDE would be banned in Europe.

The reaction of environmental organizations was, however, tepid.[60] Environmental groups lamented that it took more than fifteen years to restrict decaBDE, while the scientific evidence showing its negative effects for human health and the environment had been available for much longer. In fact, banning decaBDE had already been discussed in the early 2000s[61] but not agreed upon. Risk assessment reports produced by expert agencies in France and the United Kingdom did not support the ban, while the EC's own advisory bodies (the Scientific Committee on Health and Environmental Risks) did.[62] DecaBDE was not banned, and only a voluntary emission-reduction monitoring program was decided by

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companies. The 2017 decision shows that this monitoring program had had little effect.

Another reason for complaint by the environmental organizations was the many exceptions to restriction that the 2017 decision introduced. The restriction of decaBDE made it possible to still use the substance in several domains including aviation and, under certain conditions, the automobile industry. Other exemptions related to the fact that the restriction did not cover electronic equipment, regulated by the "directive on restriction on the use of certain hazardous substances in electrical and electronic equipment." Known as the RoHS Directive (2002/95/EC), this piece of legislation was adopted in January 2003 and lists chemicals that were expected to be banned by 2006. DecaBDE was listed there, but the RoHS Directive also includes a stage of discussion between the EC and member states for examining situations in which the use of substitutes was deemed unfeasible and introducing exemptions. This led to forgoing the ban of decaBDE, a decision that was challenged in the European Court of Justice by the European Parliament and Denmark, supported by several member states. In April 2008 the court annulled the EC's exemption for procedural reasons, while Sweden introduced a national initiative to ban decaBDE.[63]

In the story of decaBDE, exemptions are the rule rather than the exception. Rather than banning a substance neatly defined as intrinsically hazardous, legal and economic particularities are taken into account to carve out exemptions. The explanatory reports submitted by the ECHA to support the restricting decision provide some element for understanding the origin of these exemptions.[64] These reports explain that companies from these sectors were active during consultation phases to make the case for the difficulties in finding substitutes to decaBDE and for their ability to manage its risks. These arguments were then the basis for exemptions to the restriction of decaBDE. The eventual return of a case-by-case approach within the restriction procedure is possible only within a regulatory system based on regular interactions with interest groups. This is a manifestation of the intense lobbying activity that characterizes policy making in Brussels. One way of interpreting this is to identify the unmistakable influence of powerful economic actors eager to protect their interests from regulatory burdens. This is a first layer of the politics of category making for chemicals. A second layer stems from the problematization of

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European objects and European intervention that regulatory precaution entails. Because the use of precaution implies continuous explorations of various cases, the consideration of multiple cases of possible or impossible substitution and the conduct of collective negotiations automatically follow. The companies involved in the concerned sector then have a strong incentive to voice their interests and concerns. In other words, the very logic of regulatory precaution consists of tying the production of regulatory knowledge to the interests and concerns of the actors involved. That companies make their interest explicit is thus not surprising but is potentially problematic if other actors (such as environmental protection groups and member states) have fewer resources to voice theirs.

ENDOCRINE DISRUPTORS AND THE POLITICS OF REGULATORY DEFINITION

Phthalates and decaBDE are controversial because of their hazards. They are, however, well-defined substances. This is in stark contrast to other situations where even the definition of the object is controversial. Nanomaterials was an illustration of such situations. Endocrine disruptors are another one. Phthalates and decaBDE are considered endocrine disruptors, and this has been a motivation for including them in REACH's annexes.[65] But these initiatives are isolated and do not target the whole set of substances that have adverse effects on the human endocrine system. It was not until the pesticide legislation changed in 2009 that constraining regulatory interventions explicitly targeting endocrine disruptors could be envisioned. The 2009 pesticide regulation was considered a radical change. Hiltrud Breyer, German member of the European Parliament for the Green Party, called it "not only a milestone for environmental and consumer protection in Europe" but also "a magic moment for Europe."[66] If the moment was "magic," it was because of the shift from risk to hazard in the consideration of pesticides that could be banned. Instead of evaluating the risk of each pesticide before (possibly) banning it for certain uses, substances would be banned according to their intrinsic hazardous properties. This shift can be read in the terms we have been using. Instead of examining each separate case in a regulatory precautionary approach, the 2009

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pesticide regulation would offer a legal channel for excluding substances from the European market because of their intrinsic properties.

The 2009 regulation proposed the following process to do so. Companies seeking to put pesticides (or "plant protection products") on the European market must submit an application to a national "competent authority" in one of the member states. The member state then acts as a rapporteur for the product and is in charge of producing a draft assessment report, which is sent to the European Food Safety Authority (EFSA). The EFSA then conducts a risk assessment. A risk management phase follows during which the Directorate-General for Health, other services of the EC, and the applicants can comment on the EFSA conclusions, and the Standing Committee on Plants, Animals, Food and Feed votes on the proposed regulation. This last phase often sees member states divided. For instance, for both neonicotinoids (controversial for their effects on bees) and glyphosate, neither a qualified majority nor a blocking minority could be reached.[67]

While this process resembles others in European law, such as those related to the REACH regulation, the 2009 regulation introduced a significant shift in the form of criteria that automatically makes it impossible to authorize certain substances. Thus, Annex II of the 2009 regulation comprises a series of paragraphs formulated in a similar way:

> An active substance, safener or synergist shall only be approved if, on the basis of the assessment of the available evidence carried out in accordance with the data requirements for the active substances, safeners or synergists and other available data and information, it is not identified as having endocrine disrupting properties with respect to humans.[68]

In plain language, this paragraph means that if a pesticide has endocrine-disrupting properties, it can automatically be banned from the European market. If the rapporteur member state identifies a substance as an endocrine disruptor, then no risk assessment is undertaken by the EFSA, and the substance cannot be authorized. The following paragraphs adopt the same language for "reproductive toxicity" (3.6.4.) and "carcinogenicity" (3.6.5). These criteria are known as "cut-off criteria" since they automatically mean that the substance in question is banned.

The introduction of these criteria has been interpreted as a move away from the case-by-case examination of substances in their uses and

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toward a hazard-based approach. As scholar of environmental regulation Emanuela Bozzini shows, the introduction of cut-off criteria has been criticized by companies and some member states (particularly the United Kingdom) "as an additional indication of the path towards arbitrary, risk-averse and ultimately irrational decisions taken by the EU in the field of risk regulation."[69] Among the cut-off criteria introduced in the 2009 regulation, endocrine-disrupting properties have become the most complicated to deal with, and the problem of definition is probably the main reason. While the European Parliament was instrumental in including them in the 2009 regulation, the EC was far more reluctant to act after the text was passed. Legally prompted to provide a "draft of the measures concerning specific scientific criteria for the determination of endocrine disrupting properties" by December 14, 2013,[70] the EC failed to meet the deadline and was challenged by Sweden in the European Court of Justice. The court eventually requested the EC to act in December 2015. The negotiation process that followed has been analyzed in detail by journalist Stéphane Horel.[71] She neatly described the intricate maneuvers of the internal power dynamics inside the EC. As the responsibility for the issue shifted from the Directorate-General for Environment to the Directorate-General for Health (closer to industrial interests in her account), additional expert reports were commissioned, and the EFSA published an opinion that softened the international organizations' statements regarding the hazards of endocrine disruptors. These episodes reveal the high stakes of the process in terms of consequences for human health and of the involvement of industrial interests. They are also direct consequences of fundamental disagreements about the scientific expertise needed and the appropriate regulatory approach.

Two of these points of contention warrant attention. First, the notion of potency, which classifies substances according to their relationships between dose and effects, is both central for toxicology and problematic for endocrine disruptors. Endocrinologists claim that potency is not applicable in the case of endocrine disrupters, in other words, that their effects are not necessarily related to the dose humans are exposed to. By contrast, companies have been arguing that potency is a relevant criterion, and scientists with close links to companies have been calling for the use of potency to differentiate among other substances considered

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hazardous on the grounds of carcinogenicity and reproductive toxicology.[72] Second, the possibility to classify endocrine disruptors according to the level of certainty of their hazards has been discussed. Civil society groups and member states such as Denmark, Sweden, and France have been arguing for a classification system based on the level and certainty of hazards. In this system a substance could be an endocrine disruptor or a suspected endocrine disruptor.

In June 2016, the EC proposed draft legal acts that "set the criteria to identify endocrine disruptors."[73] The EC endorsed the definition introduced by the World Health Organization: "An endocrine disruptor is an exogenous substance or mixture that alters function(s) of the endocrine system and consequently causes adverse health effects in an intact organism, or its progeny, or (sub) populations."

The EC rejected the propositions for different categories of endocrine disruptors and potency as a criterion for identifying endocrine disruptors. While "fully maintaining the concept of a hazard-based ban on endocrine disruptors," the EC considered that "endocrine disruptors . . . could be assessed based on risk, like most other substances." Eventually accepted at the European Council when France shifted its position after its May 2017 presidential election, only to be rejected by the European Parliament in February 2018, the EC's stance can be seen as a somewhat clumsy compromise resulting from a conflicted negotiation. It was not well received by NGOs and a group of member states that had taken a strong position in favor of the regulation of endocrine disruptors.

Endocrine disruptors provide a telling illustration of the difficulty of crafting regulatory categories for chemicals. Banning substances from the European market based on their effects on the human endocrine system is even more complex than targeting a group of substances as nanomaterials because of their size-related properties. The current situation, in which the EC has become "a reluctant pioneer in the field of endocrine disruptors," in the words of Emanuela Bozzini,[74] is revelatory. This situation displays a tension between pressing calls for excluding a group of substances from the European market on the basis of their intrinsic properties and attempts at targeting them in ways that leave room for adaptation not only to a series of economic and legal constraints but also to the uncertainty about these intrinsic properties. Here again, what could

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have been seen (and is explicitly described) as a hazard-based approach left room for adaptation and manipulated the regulatory constraint with precaution.

REGULATORY PRECAUTION AND THE DIFFICULTIES OF INTERESTED OBJECTIVITY

Endocrine disruptors might be the latest illustration of the quandary faced by the European regulators of chemicals. This quandary originates from the pervasiveness of regulatory precaution and the impossibility of ensuring a European epistemic authority able to unproblematically rule on which chemicals can be excluded from and included in the European market. Regulatory precaution implies that regulatory categories multiply, as do the sites for collective discussion. At first sight, regulatory precaution operates in situations where the European interventions aim to turn chemicals into market entities fit for circulation in Europe. Situations in which the ban on certain substances because of their intrinsic hazardous characteristics is at stake seem to provide a different problematization of European objects. Rather than making categories multiply, they would require that a neat boundary between what is excluded and what is authorized be drawn. However, the opposition between hazard-based and risk-based does not account for how chemicals are banned in practice. Phthalates provide an illustration of how the European regulation considers many substances in their use. DecaBDE has been excluded but only on condition that exemptions are granted. Endocrine disruptors show the strong constraints put on attempts at excluding an entire group of chemicals defined by their properties.

These last three examples have been the topic of many discussions, and many of the debates they have generated have witnessed the confrontation of diametrically opposed critical discourses, each of them using science as an ally and politics as an adversary. While they are often seen as illustrations of the influence of industrial companies in digging holes in the regulatory net, they are also discussed as situations whereby politics trumps science to introduce regulatory constraints without solid evaluation of their effects.[75] These readings are significant because they show a dual weakness of regulatory precaution. First, regulatory precaution has

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so far failed to provide grounds for ensuring the legitimacy of European decision making. The multiplication of negotiation arenas might be seen as an extension of the broader arena in which the collective exploration of technical issues can be conducted, pretty much in the manner of what Michel Callon calls "hybrid forums."[76] But this multiplication means in practice that access to these sites requires important resources and that European experts are faced with an asymmetrical access to technical information. Therefore, what could be construed as a careful approach to regulation, opening up new sites for collective discussions and leaving room for future adaptation according to new scientific results, ends up as a complex institutional machinery whereby arcane procedures give much leeway to the most skilled lobbyists and decisions are made with little if any publicization of the reasoning underpinning them.

The second (and related) weakness of regulatory precaution pertains to its limited ability to provide satisfactory institutional grounds for the European production of technical expertise that I described in chapter 5 with the term "interested objectivity." This is visible in the endless debates about the appropriate scientific arguments to be used by the European institutions and the contested reference to "scientific" and "political" choices by the actors involved and has consequences for the nature of the European expertise and in fact for the role of the European expert. Attempts at producing a unified European scientific voice are made (for instance, as expert agencies are involved) but fail to settle the regulatory debates (for instance, the opinions of the Scientific Committee on Emerging and Newly Identified Health Risks about flame retardants are not followed). Instead, regulatory precaution implies that European expertise has to question the scientific basis of decision making for each new case and that the concerns of the parties involved are taken into account.

A frequent answer to this situation is to call for additional scientific expertise with the hope that it can be freed from political considerations. This is evident when considering recent initiatives that propose using models to approximate the risks of chemicals. But as François Thoreau and I have shown, using models for the European regulation of chemicals implies a situated expert judgment whereby the European experts need to open up the methods used by companies and cannot ground their decisions on ready-made black-boxed instruments.[77] This means that models

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cannot provide ready-made tools to support a centralized and unproblematic European objectivity. If regularly used within the European regulation of chemicals, models would require collective negotiations and an effort to stabilize acceptable regulatory processes. In other words, the use of models will not eliminate the need to provide institutional grounds for interested objectivity. This means that the call for additional expertise hopefully isolated from nonscientific factors might not be enough to ensure the epistemic and political robustness of the regulation of chemicals. An alternative consists of considering that regulatory precaution should be further strengthened so it can offer practical tools to act on chemicals, explore scientific uncertainties, locate known hazards, and organize negotiations among diverse concerns and interests.

Thus, the case of chemicals is particularly interesting for our reflection about the dreams of harmonization. Chemicals provide an illustration of the elusiveness of the dream of a purified science at last adjudicating controversies, as the making of technical categories is also a platform for collective negotiations and the expression of public concerns. In this situation, one can consider that regulatory precaution is hopelessly bound to favoring the most skilled lobbyists. Another analytical and political path consists of considering that regulatory precaution is a proposition for organizing European expertise and the European markets of chemicals, but this path is in dire need of discursive and institutional support. This latter perspective requires ambitious reflection about how to open up the negotiations about chemicals and each of the cases of the case-by-case approach and how to govern uncertainty in ways that associate the exploration of cases with constraining regulatory decisions. Perhaps more importantly, this perspective demands a reappraisal of the principles of harmonization whereby technical objects can be seen as explicit political matters and the dream of objectivity can be redefined in the terms of interested objectivity. Probably more theoretically and practically ambitious than an unproblematic call for scientific expertise able to settle controversies once and for all, building on regulatory precaution to reinvent harmonization can also offer a path for connecting European interventions with collective concerns. As such, this ambitious task is certainly worth undertaking.

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7

GOVERNING WITH OR WITHOUT THRESHOLDS

ENVIRONMENTAL OBJECTS

Environmental issues are at the forefront of today's policy debates, but the regulatory initiatives meant to protect the environment are far from consensual. Always caught between criticisms of modest ambitions and dubious results on the one hand and attacks of additional bureaucratic burdens and costly measures on the other, the extension of the regulatory machinery to environmental concerns is problematic. This is particularly visible in the European Union (EU), which has become a global advocate for climate action and environmental protection and has introduced numerous environmental regulations. We encountered some of them in chapter 6, which described how chemicals are governed according to regulatory precaution. But what about environmental objects such as the air we breathe and the water we drink? A would-be clean European environment is made of different kinds of objects besides many of those we have considered so far. These objects are not market entities. Instead, they are expected to be protected from the negative consequences of market activities, what economists would call "negative externalities," of which pollution is a prime example.

How can regulatory interventions work for these objects? In Europe, scholars of environmental law often identify an evolution in several stages,

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starting when the environment became a topic of regulatory concern. The 1986 Single Act introduced explicit provisions for European intervention on environment, health, and safety. The act mentioned "a high level of health, safety and environmental protection" as one of the objectives of European action. Environmental law scholars explain that constraining regulations were introduced in the 1980s. After the 1990s market-based instruments, of which the European carbon market is the most visible example, were used more and more.[1] Scholars have spoken of "positive" and "negative" integration to contrast constraining regulatory measures that all member states need to follow (e.g., emission levels for pollutants) and initiatives designed to ensure economic competition.[2] This opposition is useful and helps us understand how the European regulatory machinery gradually extended its perimeter of intervention to environmental concerns. This maps onto an opposition between a science-based approach, which would ground legal obligations on technical knowledge, and a market-based approach, for which providing the right incentives is an effective way of changing the behaviors of economic agents.

As I examined European environmental objects in several research projects over the past few years, I could easily identify illustrations of either positive or negative integration. Examples of the first category were legislations requiring member states to limit the level of pollutants in air and water. Thresholds are used in many environmental policies across the world to define limit values of various pollutants, and Europe is no exception. But defining the environment by thresholds holds a special place within the European regulatory machinery, as it turns breathing air, drinking water, and the occupational environment into associations of material elements and regulatory choices defining limits for certain pollutants. I came across examples of the second category, that of market-based approaches, when I studied with Liliana Doganova the markets of green technologies called "best available techniques" (BATs), designed to incentivize industrial actors to limit pollutant emissions *without* introducing constraining thresholds by using innovative technologies for the reduction of emissions. This alternative to the use of thresholds introduces new European market objects, the BATs.

But working on these examples showed that the opposition between science-based and market-based approaches, between positive and negative

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integrations, was not satisfactory. In this chapter, we will see that while setting thresholds might appear as a process whereby technical expertise is used to act against the market, it is in many respects related to operations intended to *organize* markets. And while the European interventions based on BATs are indeed market-based, but they do not isolate a market from policy making. They do not identify and treat individually a well-defined European object that would circulate as a single market entity across Europe. Rather, they make various BATs coexist by associating the organization of markets with negotiations among diverse actors. This means that thresholds and BATs, the examples that I discuss in this chapter, do not clearly match the distinction between what is market-based and what is not, between what can be delegated to economic actors and what should be based on regulatory expertise. Environmental objects, be they air and water characterized by thresholds or technologies endowed with environmental qualities, are defined at the intersection of the organization of markets and the production of scientific knowledge. They are related to European interventions, with or without thresholds, that do not seek to carve out an isolated domain for the market and use an expertise that is never understood as the outcome of a single authoritative voice free from political considerations. Thus, as with other cases we already encountered, the analysis of how the European environment is governed will lead us to identify institutional constructs that displace the dreams of European objectivity and a disentangled European market.

These displacements are illustrations of interested objectivity and concerned markets in action. As such, they will help us to further develop our analysis on potential new horizons for harmonization. But environmental European objects have more to offer because they touch on pressing collective issues. They can help us to start a reflection about the kinds of European objects that make environmental issues visible to the eyes of publics and regulators and allow social groups to make their concerns heard. If acting on the environmental always implies regulatory interventions mixing science and the market, maybe the objects these interventions target can be more or less tied to public concerns. Certain European objects might be more desirable than others.

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GOVERNING THE EUROPEAN ENVIRONMENT BY THRESHOLDS

In the fall of 2018 I met Alexandre, a French civil servant who had been in charge of air quality at the ministry responsible for the environment for a couple of years.[3] He had many stories to tell and visibly enjoyed making jokes about a previous job that had been difficult and about which he could now laugh. Alexandre had been in charge of implementing the flurry of European legal texts related to air quality, including a 2008 directive defining the limits for pollutants such as sulfur dioxide, nitrogen dioxide, oxides of nitrogen, benzene, carbon monoxide, and ozone[4] and a 2016 national emission ceilings directive that defined thresholds for each member state to respect for five air pollutants.[5] He told me about his endless interrogations about the kind of national policy information that the European Commission (EC) asked member states to provide, his exhausting participation in continuous negotiations with industrial actors and other national public bodies about the determination of pollutant limits, and his frustration about the persistent failure of the French state to comply with the European regulation and the numerous lawsuits that this caused. Convinced by the need to ensure air quality by enforcing unambiguous maximal levels of pollutants, he'd had to live with a complex regulatory machinery about which he had little illusion.

The conversation with Alexandre echoed what I had read about other environmental issues, such as water quality and occupational environment, similarly covered by European texts defining thresholds of pollutants. In each of these cases, controversies are numerous about whether member states comply with European environmental law, how thresholds are set, and whether these thresholds are actually effective. Delays in implementation are the norm, and numerous lawsuits are perpetually ongoing, sometimes interrupted by the announcement that a member state has "systematically and persistently breached pollution limits," as the European Court of Justice stated in October 2019 about air quality in France.[6] Thresholds appear as ambivalent instruments, leaving much leeway for reluctant member states or perhaps unscrupulous private actors while also offering entry points for legal action to environmental protection groups. To understand the consequences of governing by threshold and why it remains alluring in European circles, we can explore the

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type of objects and the type of policy intervention that it implies. Below I describe three characteristics of the government by thresholds: it is the outcomes of negotiations, it delegates elements of the production and implementation of thresholds to member states and private actors, and it requires regular controls that are at best imperfect.

First, governing by thresholds in Europe means that member states, members of the European Parliament, and representatives of diverse interest groups negotiate what the thresholds will be. Examples related to occupational safety, such as silica, show that negotiating exposure levels results in a particular politics of compromise, which in turn results in lowering the safety standards deemed appropriate by the advocates of worker protection.[7] The politics of compromise in negotiating thresholds is not specific to European environmental regulation. In fact, the silica example studied by historians Gerald Markowitz and David Rosner occurred in the United States. But it is particularly relevant to account for the dynamics of technical expertise within the European institutions, especially the negotiations that are part and parcel of the production of technical decisions. Thus, setting thresholds is the outcome of lengthy negotiations during which technical, political, and economic considerations are taken into account. For instance, occupational exposure limits are defined in European circles as being "derived from the most recent scientific data available and taking into account the availability of reliable measurement techniques"[8] and are based on the advice of the Scientific Committee on Occupational Exposure Limits. Yet they should not be thought of as purely scientific numbers, free of political influence. This would overlook the fact that they are compromises, outcomes of negotiations between member states and the EC that take into account a large set of factors, some technical and others related to economic costs or the particularity of national practices.[9]

The European government by thresholds might work with thresholds that are not uniform across Europe. Thus, the national emission ceilings used in the corresponding directive are calculated for each member state, taking into account a whole range of parameters in order to define "national emission reduction commitments" for several air pollutants.[10] The definition of these ceilings was the outcome of negotiations during which some member states agreed to give ground on certain pollutants in

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exchange for leniency about others. Alexandre, who used to be in charge of air quality in the French public administration, was a regular participant in these negotiations. He illustrated them in these terms: "Germany would give up on NH3 [an emission product of agriculture] in order to protect its industrial sector; member states would exchange this or that sector with each other."[11] Thus, European thresholds are not always unified numbers valid everywhere across the EU. The objects they describe differ across member states and are not unified entities. Government by threshold can hope to be objective but in the very particular sense of interested objectivity (see chapter 5). Instead of providing scientific descriptions of the environment meant to be carefully isolated from social concerns, interests, and priorities and consequently believed to be universally valid, government by threshold mixes diverse elements in setting limits and adapting them to national situations.

Second, governing by thresholds implies delegating the production and implementation of thresholds. In environmental law the legal format of the European text is the directive,[12] which means that member states are in charge of incorporating the thresholds into national legislation along with the entities to which they are expected to be applied (for instance, vulnerable areas for nitrates) and the measurement methods used. As they implement directives, member states might further delegate the production and aggregation of quantified indicators to other actors, including private ones directly involved in polluting activities. In France, for instance, the Centre Interprofessionnel Technique d'Etudes de la Pollution Atmosphérique is in charge of producing the measures of air pollutants required by the national emission ceiling directive. The Centre is a nonprofit organization that operates as a network of professional bodies in various industrial sectors who directly intervene in developing calculation methods for measuring pollutants originating from these very sectors. Thus, far from creating uniform European objects defined by a reduced set of carefully delimited and quantified criteria, the European government by thresholds appears as yet another manifestation of interested objectivity and the outcome of a process where various interests, including economic ones, are directly involved. This results in distributed European objects, as the European air, water, and occupational environment is diversely measured across the EU.

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Third, governing by thresholds is based on constant yet barely successful control. On the one hand, thresholds make control easier in that they provide identifiable indicators that can allow the European executive bodies to single out noncompliant member states. For instance, the EC has regularly targeted France for nitrate levels in water, and six countries appeared before the European Court of Justice in 2018 because of excess levels of air pollutants.[13] On the other hand, governing by thresholds in Europe is not synonymous with direct regulatory intervention ensuring that control is indeed exercised. Court cases are not always initiated, and when they are they are often lengthy.[14] As a consequence of delegation, control is exercised in indirect ways. Member states need to report various indicators to the EC, and these indicators are themselves computed by a variety of actors, some of them closely associated with private interests. How this reporting is undertaken can then vary widely among member states. When I met Alexandre, he spoke of the "endless reports" required by the EC and lamented the uncertainty about how to fill them.[15] He had in mind not only the quantitative requirements but also others related to the policy actions undertaken in order to meet legal targets. He was asked to list all the initiatives that the French government had launched to comply with the European thresholds. Always wondering what ought to be considered, he hesitated about whether public transportation plans and sustainable energy support programs had to be included. It is therefore not surprising that the control exercised by the EC is acutely felt by officials in national public administrations while leading to considerable variations in what is controlled and how.

AN ENVIRONMENT MADE OF EUROPEAN OBJECTS DEFINED BY THRESHOLDS

Governing the environment by thresholds means that certain types of European objects are constituted, namely environmental entities defined by a limited number of quantifiable characteristics. Such definitions give a particular shape to environmental concerns. Occupational safety is a particularly interesting example for understanding this point. Political scientist Emmanuel Henry has studied how exposure limit values were gradually introduced in France and what this process revealed of the politics

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of governing occupational safety by these values.[16] While the use of exposure limit values has been used in many countries since the early twentieth century, France did not introduce them until the 1980s and did so in a nonmandatory way. It was moreover only after European directives sought to harmonize exposure limit values that France tied them to regulatory constraints. This reluctance can be connected to the fact that in France, unlike other Western countries, occupational physicians and not toxicologists had traditionally been in charge of occupational safety. But it also signals that turning the highly local situation of occupational safety into a set of quantified variables has consequences. The introduction of exposure limit values standardizes occupational safety and makes each local situation both publicly visible and comparable to others. Henry shows the dual consequence of this evolution in France. First, the introduction of thresholds made publicly visible the ongoing arbitration to determine the levels of risk that were deemed acceptable. Accepting certain exposure limit values has meant that no such thing as a zero-risk situation would be required. Second, the introduction of thresholds turned a matter of negotiations between trade unions and employers into an issue related to discrete quantitative measurements. These measurements were only as accurate as the technical instruments used to take them. The case of occupational safety in France suggests that governing by thresholds is never neutral, as it implies that complex and situated cases are turned into matters related to the measurement of individual elements that make these cases comparable to each other.

Thus, governing by thresholds implies constituting particular European objects, which eliminates more situated and qualitative approaches. Occupational safety in France is a story of the introduction of government by thresholds and how it resulted in new quantifiable European objects. The case of the European regulation of water can be read as a failed attempt to reverse that trend, which helps explain why defining environmental objects by thresholds has remained alluring for the European public bodies. While the early European texts regulating water were based on a limited set of thresholds,[17] the 2000 Water Framework Directive (WFD) introduced a radical change of perspective based on an ecological understanding of the protection of water.[18] As a specialist of the WFD noted, "the directive's philosophy consists of determining ecological objectives

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for aquatic milieus."[19] Setting ecological objectives implied a departure from the previous European texts in that it aimed to grasp the global situation of milieus instead of collecting separate sets of indicators. The WFD introduced a new objective, the "good ecological status," and a new regulatory entity that had to meet this objective, the "river basin." A series of integrated expectations were introduced for river basins, including "general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water,"[20] that had to be the topic of management plans that member states were compelled to submit. Thus, the WFD sought to ensure not only that independent parameters related to water were monitored but also that ecological systems were managed, taking into account a wide range of factors including the biological characteristics of habitats as well as the economic costs that consumers, public bodies, and private actors had to bear and the need for the engagement of the actors involved.[21] The WFD can be read as an attempt to turn the government by thresholds into another mode of public action, targeting heterogeneous and possibly transboundary entities (the river basins) and leaving room for the ecological description of habitats and milieus.

This objective proved to be far too ambitious for the national public administrations in charge of operationalizing it. Critical accounts of the implementation of the WFD abound both within environment protection organizations and in the academic community. Ten years after the WFD, there were "three hundred ways to assess Europe's surface waters" to comply with the WFD[22] and "no generally applicable European method for water body assessment."[23] In this context, public administrations have often reverted back to known indicators and practices.[24] This has prompted specialists of water ecology to consider that rather than looking at the "total environment," the WFD has resulted in a compromise whereby public agencies revert to their known practices, reducing habitats and milieus to a series of indicators that are poorly representative of the complexity of ecological situations.[25]

The WFD offers a contrast to the European approach to occupational safety. The directive proposes an attempt to turn the government by thresholds into a more complex approach that takes the ecological status of habitats and milieus into account more adequately. This implies that

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local situations are accounted for in all their complexity. The difficulty that the approach encounters bears witness to the appeal that government by thresholds has for public administrations in charge of monitoring the environment. Governing by thresholds makes it possible to base policy making on simple quantitative instruments. This simplifies complex realities by rendering them measurable and comparable to one another. In addition, governing by thresholds makes it possible to constitute neatly defined technical entities such as the occupational environment and air that can then be monitored, however imperfectly.

GOVERNING BY THRESHOLDS AGAINST THE MARKET?

By setting constraining limit values for environmental entities, government by thresholds seems to operate against the extension of the market. Instead of making European objects by disentangling entities expected to serve as market objects and to circulate in economic exchanges throughout Europe, government by thresholds introduces constraints to make sure that the environment meets certain criteria, which may possibly counter the negative externalities of the market. Even if European air, water, and work environments could become European objects, they are objects of a very different nature than those we have encountered so far, which were expected to circulate on the European market. Government by thresholds seems to offer another mode of European intervention whereby, for once, the market is not the vehicle for action but instead is the force that has to be kept in check.

This interpretation should be nuanced, though, for the relationships between this mode of government and the market are more diverse, and government by thresholds is visible in the situation where policy interventions are directly connected to market making. Remember that we encountered in chapter 3 market objects, such as cigarettes and financial products, that become European objects endowed with qualities related to their risks. I showed that intervening on these objects has become a way to extend the perimeter of European intervention to new domains. A similar type of intervention is visible in the environmental domain, as many polluting industries are also regulated by thresholds. The automotive sector has been the topic of numerous European texts setting emission

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thresholds. Another example is the aerosol sector. It has been regulated by the Aerosol Directive of 1975,[26] which defines pressure and flammability thresholds that producers need to comply with. In these cases, the characteristics of the consumer goods are defined by additional environmental criteria. Technical tests on aerosols are coordination instruments for private companies, allowing them to craft collective positions (e.g., about the acceptable pressure level for aerosols) that will then be used to adapt the existing regulatory texts.[27] The same characteristics of government by thresholds that I described above can be identified in the car and aerosol examples. A broad policy issue (for instance, the impact of car fumes on air quality) is turned into a matter of measurement of individual entities (e.g., the emission value of individual pollutants). Thresholds are then the outcomes of negotiations involving a plurality of actors, and setting them frequently relies on delegation to the industrial companies. The negotiations during which thresholds are set often involve the concerned companies, and these companies are then in charge of making sure that, for instance, cars respect the emission thresholds and aerosols have the right technical characteristics. Ultimately, control is required yet remains imperfect. As scandals involving car companies tinkering with measurement apparatus show, delegation is not a binding tie and might offer a lot of leeway to unscrupulous private actors even if other regulatory texts explicitly state how the measurements are to be done and the tests are to be conducted.[28]

New types of thresholds have been recently added to the regulation of the industrial sector to account for global environmental issues. The use of carbon thresholds can be seen as yet another extension of the government by thresholds and its insertion in market exchanges. We encountered in chapter 4 the so-called carbon market, known in Europe as the Emissions Trading System (ETS), that relies of immaterial carbon permits. These permits are associated with emission caps, which are acceptable thresholds of emission.[29] But the quantification of carbon emissions also illustrates the consequences of turning environmental issues into matters of quantifiable thresholds when we consider attempts at controlling the carbon emissions of certain production processes. Biofuels are known examples, claimed to be carbon neutral by their proponents but potentially leading to deforestation. It is because of this that the 2009 Renewable Energy Directive introduced carbon emission limits for biofuels.[30]

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The focus on carbon emissions is not neutral, though. It goes with a problematization of environmental issues that makes the quantification of carbon a central task. In the case of biofuels, this has led to lengthy discussions about direct or indirect deforestation effects.[31] These issues have constituted a major topic of discussion around biofuels, but problematizing sustainability as a matter of setting quantitative carbon emission thresholds in itself has consequences. It might leave aside nonquantifiable considerations such as so-called social sustainability aspects related, for instance, to work conditions in extra-European agricultural production sites.[32] Making sustainability a matter of quantifying carbon emissions also shapes the type of regulatory discussion and the identities of the participants in it in ways that resemble the politics of environmental thresholds described above. Thus, sociologist of science Les Levidow explains that the arguments about carbon quantification "became an implicit proxy for wider conflicts," such as those involving the target share of biofuel consumption.[33] This proxy, however, proved deadly for many nongovernmental organizations (NGOs), as they failed to campaign on a topic they did not master in detail and faced adversaries with much more technical and financial resources. Levidow shows that the debate about carbon quantification "marginalised controversy over 'agrofuel' expansion as inherently driving harm to natural resources and rural populations" and eventually reinforced the European commitment to biofuel development.[34] Described as such, biofuels seem to tell a story that is now familiar to us. Carbon thresholds are introduced to make them "green enough," and this impacts the type of policy negotiations and the identity of the participants.[35] As in the case of tobacco products (see chapter 3), a market object is harmonized, and the requalification of this object extends the scope of European intervention but in ways that at best are complex to delineate for concerned publics with fewer resources and at worse prevent them from voicing alternative priorities.

THE AMBIVALENCE OF ENVIRONMENTAL THRESHOLDS

Thresholds offer a way of governing the European environment and, in doing so, of defining its components. They propose turning environmental issues into matters of measurable quantities. They have the virtue of

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clarity and offer a mode of regulatory intervention that promises to determine desirable qualities at once. Air, water, and the occupational environment become European objects characterized by shared pollutant limits, and thresholds are used to protect them mostly from the negative consequences of market activities. We just saw that the components of the government by thresholds are also visible in interventions that target market objects. In all these cases, thresholds are never the outcome of a would-be centralized European objectivity imagined as a single epistemic authority but imply that collective bargaining is undertaken at the heart of the technical operations that are necessary to characterize environmental matters. Thresholds function as components of a regulatory machinery that is less a well-oiled system than a complex apparatus providing unequal possibilities of access and control.

Should we then wish for a centralized source of objective expertise at last able to keep political and economic interests at bay? It is tempting to react to the less than satisfactory manifestations of the government by thresholds by calling for a European body of expertise that would provide independent scientific advice to define once and for all the components of a clean environment. This might well come at a high cost, though, that of concealing even more the bargaining practices that are at the heart of threshold setting in situations where defining limits is necessarily about a wide range of public concerns related to available industrial production processes, desirable quality of living, and acceptable levels of uncertainty. Another option is to further cultivate the possibilities for European interventions that thresholds offer to make them more responsive to public concerns and ultimately more effective.

This alternative recognizes that thresholds inherently mix scientific and political considerations and in many cases are also used to organize market exchanges. Sticking the dreams of objective science and the disentangled market on them risks overlooking those actual practices, further contributing to what critical scholars interpret as an overly technical framing excluding civil society groups and their concerns. This also risks ignoring that thresholds do offer policy levers and turn invisible yet problematic situations into public issues that are visible to the eye of regulators and concerned publics. But taking these practices seriously would also require a deeper reflection about the conditions of their determination

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and implementation and the ways in which thresholds can represent public concerns about environmental qualities. It might also mean that thresholds ought to be associated with other kinds of policy interventions, possibly *not* based on thresholds.

GOVERNING THE EUROPEAN ENVIRONMENT WITHOUT THRESHOLDS

By turning the environment into measurable entities, thresholds make it possible to view and compare air and water quality. There is a way of governing the environment that was explicitly introduced as an alternative to thresholds of pollutants. It originates from the 1996 Integrated Pollution Prevention and Control (IPPC) Directive, included and extended in the 2010 Industrial Emission Directive (IED). The IPPC Directive and the IED do *not* determine threshold levels in European regulation; rather, they introduce a distributed system of permits granted to industries by national public administrations on the condition that BATs are used to control pollution. BATs are industrial technologies used in processes as diverse as iron smelting and milk production in order to limit the emission of pollutants. But how do we determine whether or not they are "the best"? The term "best available techniques" is introduced in the directive, but the somewhat abstruse language of the official text provides little indication of how they are chosen. Seemingly circling on itself, it says, for instance, that "best" means "most effective in achieving a high general level of protection of the environment as a whole."[36] This imprecision is deliberate. It is up to member states to list the techniques that are the "best available" and those that companies need to use.

This approach was explicitly meant as a departure from environmental policies based on European-wide threshold levels. The reasons for this shift were diverse,[37] including the objective of adapting to local contexts in each member state and of balancing environmental regulation and economic costs. By introducing the term "best available techniques," the IPPC Directive was indeed an environmental *and* industrial policy. BATs were expected to constitute a new market for which the environmental regulation would create a demand, as companies would choose from a range of diverse techniques according to their needs. These BATs

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are themselves defined in entirely flexible ways that are expected to take into account both environmental benefits and economic costs. BATs are determined by member states, some of which have drawn up guidance documents for this purpose while others have not. When they exist these guidance documents differ across countries, as do the ways used to express emission limit values on permits (e.g., with reference to time periods or statistical methods). Liliana Doganova and Peter Karnoe have analyzed how the Danish Environmental Protection Agency sought to provide a list of BATs that industrialists could use to be granted an environmental permit.[38] In the particular case of techniques to reduce ammonia emissions from the intensive livestock farming that they studied, they show that this process implied multiple experiments with these techniques as well as a refinement of calculation methods for both environmental benefits and economic costs. These episodes were hotly debated as, for instance, farmers' organizations produced alternative calculations, and the companies developing the techniques argued that their costs were lower than the agency had calculated. Overall, Doganova and Karnoe's account shows that the definition of what BATs are is to a very large degree situated and depends on the various modes of negotiation in each member state.

Liliana Doganova and I described this situation as being characterized by an objective of "coexistence" of various BATs in which what matters is to "keep things different."[39] We showed that the flexibility at the heart of BATs was seen as a condition for balancing environmental benefits and economic costs and ensuring a dialogue between industries and regulators to do so.[40] For scholars of environmental law, the coexistence of various BATs is a problematic situation. The IPPC Directive makes both the European environment and the effectiveness of environmental law "increasingly difficult to monitor."[41] The difference with government by thresholds is certainly clear. Flexibility does not occur in the delimitation or the implementation of the threshold but instead stems from the refusal to determine thresholds upfront. The regulatory apparatus is constructed in such a way that no European-wide limits on pollutants can appear. Instead, the limits that are expected to be mentioned on environmental permits are derived from the BATs used by companies.

It is not surprising, then, that the issue of the harmonization of BATs emerged. If various BATs are indeed meant to coexist, how is the variability

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that then emerges to be governed? How can they be kept different yet not so different that they would not be European at all? In the wake of the IPPC Directive, various processes were aimed at supervising the definitions of BATs and exchanging information. This came to be known as the Seville process, since Seville in Spain is where a European IPPC Bureau was established. This IPPC Bureau coordinates a network of technical working groups comprising officials from the EC as well as representatives of member states, private companies, environmental organizations, and research institutions. These technical groups are in charge of producing documents describing the BATs. These documents, called BREF (for "Reference Documents for Best Available Techniques"), are substantial. For instance, the BREF for poultry and pig farming is a 383-page text that describes processes and their impacts, details good farming practices and storage and treatment techniques for manure, and states their costs and the emission levels that they can help achieve.[42] These conclusions about costs and emissions are then used by regulatory authorities in member states to set the conditions under which permits are granted.[43]

THE IMPLICATIONS OF AN INVISIBLE EUROPEAN ENVIRONMENT

In 2006, thirty-three BREFs had been completed. Five years after the 2010 IED, the IPPC Bureau was still reviewing them to comply with the new directive.[44] In 2015, seven EC Implementing Decisions had been released for the adoption of BATs related to domains such as glass and paper manufacturing and iron and steel production.[45] The slow pace of producing and revising BREFs is a sign of the complexity of the process. There might be many potential "best" technologies in some industrial domains, particularly in industries such as pulp and paper where production is organized in different stages and involves various raw materials of different quality.[46] But as in many other cases of technical discussions in European arenas, this complexity originates from both the technicalities of the process and the fact that these discussions are also meant to be political negotiations among the actors involved. This is visible in the overall organization of the revision process of BREFs, which associates the works of the technical groups with the opinions of a "forum for the exchange of information" created by the IED.[47] Chaired by the EC, its members

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comprise "Member States, international organisations representing industries . . . and non-governmental organisations promoting environmental protection."[48] And as with the other European expert groups we encountered in chapters 5 and 6, the arenas where BREFs are discussed do not provide equal access to all actors. Detailed studies of the technical working groups show that most participants are national government officials and representatives of industrial sectors and that researchers and members of NGOs are only marginally represented.[49] These asymmetries have been a topic of concern of environmental organizations.[50] They are tied to a process whereby issues and concerns are transformed into technical matters meant to be examined and negotiated in the confined arenas of the European expertise.

The IPPC system has been criticized. A line of criticism relates to the fact that private companies have been keen to claim that they use BATs to argue for the environmental performance of plants situated outside of Europe, where none of the other components of the IPPC system exist (such as a competent national regulatory authority in charge of granting environmental permits), with disastrous environmental consequences.[51] Indeed, BATs can function as "best" techniques only if caught in the entanglement of reference documents, national interventions, and European negotiations. But even within this system, the environmental contribution of BATs remains elusive. In a conference organized in 2000 by the EC on the Seville process, experts from environmental NGOs saw the negotiating process through which BREFs were written as counterproductive for stimulating the development of the most innovative environmental technologies.[52] Since then, the evaluations of the environmental performance of the industries covered by the IPPC Directive have been mixed. For instance, a recent evaluation of the environmental performance of dairy industries in Spain (which all had environmental permits as requested by the IPPC Directive) found that few techniques among those "available" were actually implemented and that the emissions of the plant were not always correlated with the use of BATs, possibly because of issues related to implementation and/or the choice of the most suitable techniques.[53] This does not seem to be an isolated example. The UK Department of Environment, Food and Rural Affairs assessed the implementation of the IPPC Directive and found that only a minority of the installations it had surveyed had permit

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conditions compatible with the emission levels stated in the BATs reference documents.[54] The implementation of these reference documents has been found to vary widely across member states.[55]

Independently of whether or not BATs are actually used and of the variety across member states in selecting them, the emission limits that emerge from BATs have been regularly criticized by the environmental organizations as being too generous for the industries.[56] Critics have pointed to the calculation method used in BREFs, which expressed emission levels as a ratio of a mass of a given pollutant over an overall volume of emissions. They consider that this concentration approach ignores pollution peaks and favors big facilities for which the overall volume of emissions is large.[57] The list of pollutant emissions included in the IPPC Directive has also been challenged, as some have considered that substances such as persistent organic pollutants and heavy metals should be included in all BREFs.[58] In 2015 an independent academic study of the IPPC Directive "did not find evidence of significant results of its implementation."[59] Evaluations commissioned by the EC have been unable to connect the decrease in industrial emissions observed during the 2001–2010 period with the use of BATs. They were listed as one potential explaining factor among many, such as national policies and the financial crisis.[60] This situation of uncertainty should not be seen as a temporary issue that is problematic but potentially solvable. The issue here is not just related to the "availability and quality of existing data" about, for instance, "the level of industrial activity per type of sectors and process," "the split of emissions between the different sub-processes," or "the performance of installations."[61] The situation is also connected to the flexibility at the heart of the IPPC approach. This flexibility means that different emission limits will be the outcomes of different techniques. And various techniques can be used according to the particularities of the industrial process undertaken by companies. Consequently, BREF conclusions might include different emission levels. Uncertainty is built into the IPPC system, which manufactures an environment that cannot be monitored because of the distributed nature of the regulatory mechanism.

The contrast between the system that the IPPC Directive introduced and the government by thresholds could not be stronger. Here, thresholds are not determined at the European level but are expected to emerge from the BATs. The European environment that emerges is shaped as a plural

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landscape, invisible from above but scattered across many local sites. But as European regulations based on thresholds, the IPPC system is also based on European interventions that are not purely based on scientific expertise or on the outcome of a delegation to the market. The system that the IPPC Directive put in place is market-based in that it trusts the market for BATs to come up with satisfactory emission levels. But it is not market-based in the way the carbon market is. We saw in chapter 4 that the carbon market is hoped to be a disentangled market, possibly functioning independently from what its proponents see as political disturbances. In this case as in others we encountered in the previous chapters (particularly chapter 3), market objects were created; they were meant to be standardized and to circulate on a neatly bounded market space. Constituting a new market could then become a way of extending the scope of European interventions to new policy domains. As they argued in the early 2000s for the need for a European carbon market, the proponents of emission trading explicitly considered the IPPC Directive as a counterexample whereby too many regulatory interventions were introduced in the organization of the market.[62] This is not surprising, because instead of envisioning standardized European objects disentangled from their local sites of production and use and a corresponding harmonized market disentangled from policy negotiations, the IPPC system makes the negotiations of these market rules an ongoing activity, as new techniques are hoped to be introduced and new reference documents need to be produced to describe them. In doing this, the IPPC system is market-based but also implies numerous regulatory interventions at the heart of the functioning of the market.

ALTERNATIVE HARMONIZATIONS?

This chapter has discussed European interventions intended to govern the European environment. While government by thresholds is a way of constraining market activities by acting on their negative externalities (pollutants), the IPPC Directive is based on new market objects, the BATs, expected to ensure that pollutant levels are acceptable. These examples afford an opportunity to identify modes of government of European objects with or without thresholds and extend our reflection on the long-term perspectives for harmonization.

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Government by thresholds is based on the possibility to state what the appropriate thresholds are based on appropriate scientific expertise. This mode of government does not, however, suppose that expertise institutions are distinguished from political negotiations but instead locates these negotiations at the heart of the establishment of thresholds. Thus, and like regulatory precaution (see chapter 6), government by thresholds can be described as a manifestation of interested objectivity. The market of BATs is not expected to be a neatly bounded market where well-standardized objects circulate. BATs are not completely disentangled from their national contexts, since they are defined by each member state. The BATs market is also a platform for negotiation among stakeholders. In contrast to the implications of the objective of disentanglement and similar to the sustainability schemes designed to certify the sustainability of biofuels (see chapter 4), the IPPC Directive tightly entangled the organization of markets with policy making and results in the construction of many "concerned markets."[63] This shows that the government of environment in Europe is not guided by an objective science neatly purified from external concerns. It is a hybrid matter, bringing political and economic considerations together yet in ways that often propose more complex constructs than the mere delegation to a would-be disentangled market. Environmental issues show that harmonization in practice does not use objects for the sake of the pure market or pure science.

The initiatives discussed in this chapter are routinely criticized. These criticisms point to a certain incompleteness of the European government of environmental issues. Those that target environmental thresholds point to the procedural weaknesses of setting thresholds, as corporations with clear economic interests are involved and technical discussions occur in secluded arenas. The resulting thresholds are often less ambitious than they might have been, and controlling how they are respected is challenging. Some of the criticisms that target BATs and the IPPC system adopt a similar guise, as they lament the reduced roles of civil society organizations or the flaws in control mechanisms. These considerations point to the kind of difficulty we already encountered when examining other technical objects. European objects might become explicit political beings, tied to negotiations about how to organize functioning markets and produce objective expertise, but the processes to make them so still

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require both significant institutional work and a theoretical reflection able to rephrase the principles governing harmonization by, for instance, following what notions such as "concerned markets" and "interested objectivity" entail.

This can lead us to two opposed conclusions. The first one involves considering that Europe has no satisfying way of governing environmental matters, since all regulatory initiatives are hopelessly skewed in favor of the most powerful actors, and the action on and through objects necessarily reduces complex environmental realities into simplified measurable objects (as the critics of carbon accounting remind us). The second conclusion sees European objects as the main vehicles for European action and as potentially powerful tools for conducting European policy in ways that turn technical issues and market organization into topics for collective negotiations. This latter perspective accepts what European regulation is in practice and tries to explore how it can provide the instruments to conduct European policies that are both democratically satisfactory and environmentally meaningful. As such, this perspective might offer more practical channels for ensuring that the European project does not leave environmental concerns aside. But one cannot be naive about European objects at this point. Institutional and theoretical works are still needed to conduct a politics of European objects that would be connected with environmental concerns. And the fact that BATs are criticized for their limited environmental values shows that not all European objects can easily connect with public concerns about the environment. While environmental thresholds both simplify environmental problems and render them visible to the eyes of the regulator and those of potentially concerned publics, BATs remain tools mostly available to companies and are purposefully designed to maintain a state of uncertainty and *not* to provide visible environmental contributions. If one is to consider that European objects can provide meaningful paths for European interventions, then the type of publics and problems they are associated with ought to be analyzed carefully, and some of these objects might be more desirable than others.

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8

STRESS TESTING EUROPEAN OBJECTS

ARE CRISES OPPORTUNITIES?

I started working on this book a year after the Brexit referendum, and I finished it in the midst of the COVID-19 pandemic. These crises are only additional ones after many others, from the uncertainties of the early days of the European project to the more recent financial crisis. European officials and scholars are prone to seeing crises as opportunities for furthering European integration, so much so that this understanding of the crisis is intrinsically tied to the history of European integration.[1] Brexit might be the most recent illustration of this, as negotiator Michel Barnier has been lauded for ensuring that the twenty-seven member states of the European Union (EU) without the United Kingdom speak in a unanimous voice and that the stability of the Single Market has remained nondisputable. Echoing the narrative of crises as opportunities, the European commissioner for health responded to the COVID crisis by seeking greater levers of action in ensuring that citizens of the EU "have access to the medicines they need, to the medical devices and medical equipment they may need."[2]

But do these opportunities mean that new perspectives for harmonization are envisioned or that existing ones are restabilized? There are examples that force us to be cautious when considering the narrative of crises as opportunities. In chapter 5, I mentioned the case of the European Food

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Safety Authority (EFSA). This might well be the paradigmatic example of an institutional response to a crisis situation, intended to guarantee public safety at last. But the EFSA, an apparent success of strengthened integration, was construed as an institution that imagined expertise in ways that ignored the practices of European objectivity and eventually became more a source of controversies than an adjudicator of them. There are examples of this dynamic in other domains. During the Greek sovereign debt crisis of 2009–2010 calls for an objective accounting evaluation of the Greek public debt were regularly heard, and making this evaluation free from what was construed as political influences was a central objective. Yet European accounting working groups, like other European expert groups, operate as platforms for both epistemic evaluation and collective bargaining during which the nature of the accounting entities is negotiated.[3] It was only in ignoring this process that the European response to the crisis could introduce constraining interventions on Greek public finance that were sealed off from political discussions, including in Greece itself.[4] In this case as in the EFSA one, strengthening European integration meant reproducing the dreams of harmonization based on science and markets purified from public concerns, which fueled additional controversies and failed to turn technical and economic choices into explicit political matters.

We now understand that European objects hold an ambiguous position in this landscape. The previous chapters have shown that objects provide additional possibilities for action at European levels. Granting market objects with more qualities, creating immaterial market entities, and introducing thresholds to control (albeit indirectly) air and water are operations that extend the perimeter of European interventions. Michel Barnier's success at maintaining a unified position on Brexit relates to the need to control market objects as they flow across the Irish border. As the health commissioner explicitly said, future European responses to the COVID pandemic would target masks, tests, and drugs. In chapters 5, 6, and 7, we encountered European objects that recompose the practice of harmonization. The coexistence of genetically and nongenetically modified organisms, the regulation of chemicals through regulatory precaution, and the government of environmental matters with or without thresholds are not based on the idea that a centralized European expertise could provide

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scientific evaluations neatly distinguished from political considerations. Nor do they try to disentangle markets from public concerns. As such, these initiatives provide perspectives for European harmonization that rephrase the dreams of disentanglement and objectivity, and possibly connect European interventions with pressing public concerns. They do so in ways that are not all equally valuable, but all are prone to institutional instability. This means that understanding what kind of opportunities crises are (and, more fundamentally, how particular situations are problematized as crises) requires a deeper look into European objects to both understand the dominant forms of harmonization and envision alternative ones. Objects might offer additional means of intervention and convenient responses to crises, but if they restabilize existing approaches to harmonization, they might well fuel what causes a crisis in the first place.

RESPONDING TO CRISES

In 2016 I started working with Basak Sarac and Alexandre Violle on the European response to two recent crises, the Fukushima accident and the 2007 financial crisis.[5] We were interested in a mode of European intervention based on stress tests. Stress tests involve assessing the ability of an entity (be it a bank, a nuclear plant, or any other technical system) to withstand an adverse scenario. Bank stress tests were first used in Europe in 2009, and European nuclear stress tests were conducted in 2011. As with other responses to crisis situations, these stress tests were caught in narratives of crises as opportunities whether met or missed. The bank stress tests were often construed as a successful example of integration, with increased power granted to the European Central Bank (ECB). By contrast, the nuclear stress tests were regularly criticized for failing to unify the European nuclear safety policy. But these assessments should not be taken for granted if only because the categories of "success" and "failure" they use do not question the logic of responding to a crisis by acting on and redefining objects, be they nuclear plants or banks. Yet acting on objects offers additional room for maneuver at the European level but also means that broad policy issues (whether the financial system is sustainable and determining the desirable share of nuclear energy in the energy mix) are turned into matters of technical examination (whether banks are able to

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withstand a loss of capital and whether nuclear plants can resist natural disasters).

In Europe as elsewhere, stress tests are instruments meant to reveal a certain technical reality to multiple audiences, including regulators in need of knowledge for policy action and publics expected to be convinced that potential risks are appropriately dealt with. The bank stress tests were expected to reveal what the true states of banks are for the benefit of regulators eager to stabilize them and of investors in need of reassurance. The nuclear stress tests were defined as a public demonstration of how nuclear plants could handle a catastrophe such as Fukushima for the benefit of both regulators and a supposedly wary European public. Because they are expected to provide unbiased representations of technical objects in need of evaluation, stress tests are European interventions whereby the question of objectivity is central. They are explicitly associated with a call for transparency regarding the true state of the problematic objects at stake. Thus, stress tests are supposed to provide public proof serving higher aims, such as restoring trust in the stability of the European financial system and in the safety of European nuclear power plants. As scientific experiments associated with public demonstrations,[6] stress tests are instruments that rely on a narrative of trust as the outcome of objectivity and transparency.

These objectives can be and have been called into question. As we will see in this chapter, the stress tests were vividly criticized, and their outcomes were challenged. Whether or not the stress tests were successful, whether the evaluations they proposed were correct, and whether they did indeed succeed in manufacturing trust have been debated. This shows that the stated goals of objectivity and transparency should not be taken at face value. Accordingly, this chapter asks what "European objectivity" and what transparency stress tests configure.

Examining this question requires that one examine the conduct of stress tests and their subsequent regulatory follow-up. These interventions, like any test in general, focus on entities—banks or nuclear plants—that need to be configured so they can be tested.[7] Stress tests imply that large-scale matters of concern, such as the stability of the European finance sector and the relevance of nuclear energy, are turned into issues related to the evaluation of technical objects. As such, they constitute European objects—banks or nuclear plants—insofar as they define characteristics

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for these entities that make them testable at a European scale. Thus, the European objects at stake here are entities expected to be governed at the European level while possibly serving as proxies for large-scale systems that are expected to be controlled. Their definitions engage the understanding of the crisis—indeed, the very nature of what the crisis is supposed to be about. As such, when how to test banks and nuclear plants is discussed, the crisis is problematized.

For this to occur, a capacity for European intervention on these objects is needed. Making banks and nuclear plants testable requires that a European ability to evaluate the tests be constituted. Stress tests, like any other test and as the sociology of testing has shown, are conducted in front of a dual audience.[8] First, the validation of the test outcomes supposes an institutionalized ability to attest. In the examples discussed here, the stress tests were conducted by private and/or national actors and then validated by European expert groups or agencies. Second, an external audience is expected to be convinced and reassured by the whole process. This external audience, be it investors in the case of the bank stress tests or a wary general public for the nuclear stress tests, is the one expected to regain trust in threatened technical systems. The study of the debates about the publics that are expected to be assembled to witness the conduct or the outcomes of stress tests will help us examine what European interventions were envisaged during stress tests. While stress tests problematize banks and nuclear plants as technical entities in need of objective and transparent evaluation, they also problematize what the appropriate European intervention should be and for the benefit of whom it should be conducted.

HOW WERE STRESS TESTS CONDUCTED, AND TO WHOM WERE THEY ADDRESSED?

In finance, stress tests were first used in the 1990s. They were originally created by economists at JP Morgan, who aimed to anticipate the effects on assets of rare and catastrophic events.[9] Since then, bank stress tests have been used by several banks based on the same general principle. Crisis scenarios are imagined, such as a fall in real estate or oil prices or an embargo on raw materials, and the effects of the scenario on the bank's assets are modeled.

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After the 2007 financial crisis and the collapse of Lehman Brothers, the US Federal Reserve decided to use stress tests to reassure investors that US banks were creditworthy. The initiative was welcomed and seen as successful.[10] This made the stress tests even more appealing to European actors, eager to display what the true state of banks was[11] as part of a more general comprehensive assessment that the European institutions launched in the wake of the financial crisis. The comprehensive assessment also comprised an audit of the European banks, which was the first (and necessary) step for the stress tests to be conducted. The European Banking Authority (EBA), created in 2011 as an answer to the financial crisis[12] and part of a more general project called the Banking Union,[13] was in charge of running the tests and monitoring the banks. The banks would run their internal models to test the consequences of adverse scenarios, and the outcomes would then be assessed by the EBA. In this context, the stress tests were expected to reassure investors of the stability of the European banks.[14]

The insistence on "audit" ought to be understood within a general concern for an imagined investor worried about the consequences of the financial crisis. Audit is a device of transparency, but not a neutral one, that serves to make certain realities visible and obscure others and also frames the entities as being "auditable."[15] I will get back to a discussion of what it means to make the banks auditable in the context of the European stress tests. At this stage, we can already identify a narrative in which the banking stress tests were caught: trust would emerge from an objective and transparent description of what the banks were.

This narrative was also present in the case of the 2011 nuclear stress tests. The reference to the banking stress tests was explicitly made at the time. While the Fukushima catastrophe was still ongoing, Austrian environment and agriculture minister Nikolaus Berlakovich proposed following the examples of the bank stress tests and organizing European nuclear stress tests to "find out how safe nuclear power plants are."[16] That this proposition came from Austria is not incidental. As a European member state where nuclear energy was banned in 1978 and has been strongly opposed since then,[17] Austria holds a particular place in the European discussion about nuclear energy. When it comes to issues regarding the nuclear power plants close to its border with the Czech Republic, relations are often tense.[18] We can therefore understand the sensitivity of framing nuclear

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energy as a European issue and Berlakovitch's remark. Even if member states could choose their own energy sources, he considered that nuclear safety was "an issue affecting the whole of Europe" and as such was worthy of European intervention.[19]

At the European level, discussions about nuclear safety are conducted within the European Nuclear Safety Regulators Group (ENSREG), an expert group operating in liaison with the European Commission (EC). ENSREG was tasked by the EC to organize nuclear stress tests. Commissioner for Energy Günther Oettinger saw them as an ambitious check on the safety of all European nuclear plants, possibly leading to some of them being shut down:

> If we can't imagine shutting down certain nuclear power plants, we can just forget about the stress test right now. With 143 nuclear power plants in the EU, I wouldn't venture to predict that all will pass. If we apply the highest safety standards, no country can rule out from the get-go that it may have to retrofit or shut down its power plants.[20]

At last, the stress tests would offer a clear view of European nuclear plants and make it possible for the European institutions to act and possibly close down or retrofit the most hazardous ones.

The banking and nuclear stress tests, conducted by private and national actors under the eyes of public authorities, were expected to provide an objective and transparent assessment: objective in that they would provide an unbiased description of technical objects and transparent in that the results would be publicly displayed. Objectivity and transparency would then reassure wary investors and concerned citizens that financial and nuclear risks were appropriately governed. These objectives should not be taken at face value, though, if only because the outcomes of the stress tests were contested. In 2011 the Belgium bank Dexia passed the stress tests shortly before going bankrupt, which prompted journalists to quip that the only thing the bank had succeeded in was the European stress tests. The comparison with the American stress tests was then regularly made at the expense of the European ones.[21] Economists considered that the scenarios used in the European banking stress tests were "too rosy" and "were overtaken by the events in the worsening sovereign debt crisis."[22] After the nuclear stress tests, national regulators were asked to submit non-binding "national action plans,"[23] but contrary to what Commissioner

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Oettinger had envisioned, the nuclear stress tests did not cause any plants to shut down. This prompted the European Green Party to describe them as "fake" tests that would "only serve as 'alibi tests' so nuclear operators can continue their business as usual."[24]

These episodes seem to characterize the European stress tests as failed attempts at regaining trust. This might well be the case, but as we will see, we need to proceed with caution before seeing them as failures. The 2011 bank and nuclear stress tests were followed, respectively, by other bank stress tests and by a new nuclear directive. These initiatives significantly extended the scope of European action; I will come back to how they did so. They can be regarded as direct outcomes of the stress tests, which would then be successful if seen from the viewpoint of the European institutions. But more fundamentally, whether or not stress tests were fake cannot be our question with regard to the narrative linking trust to objectivity and transparency. Instead of starting from the premise that an objective and transparent evaluation results in the guarantee of trust (meaning that a lack of trust is due to a lack of objectivity and/or transparency), I want to explore what it means for European action to phrase the risk issue in terms of objectivity and transparency. If we are to analyze what kind of European objectivity stress tests build on and produce, then we cannot use the vocabulary of "success" and "failure" as an unproblematic analytical repertoire. An alternative consists in getting into the actual stress tests: What objects do they assess? Who is in charge of assessing them? Who do stress tests benefit? And what European intervention did they eventually make possible? Answering these questions will allow us to explore the mechanics of building objectivity and transparency and the consequences of stress tests for European objects and how they are used.

DEFINING BANKS AS INDIVIDUAL AND NATIONAL ENTITIES

Stress tests evaluate banks, defined by their assets. The audit phase of the comprehensive assessment provided that definition by describing the assets of European banks. The focus on assets directly comes from a way of considering the value of banks that focuses on the investor looking for future revenue—an approach that is grounded in international

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agreements such as the Basel Agreements whereby the standardization of accounting practices makes banks "pure financial market actors, only competing to attract investors by offering them higher risk/return ratios than their competitors."[25] The abstract objective of reassuring investors is materialized here, as the focus of the comprehensive assessment makes visible the information directly addressed to them. Displaying information about banks through stress tests also implies that their reactions to an adverse scenario are assessed. The American stress tests had applied uniform quantitative parameters (such as a 20 percent drop in real estate prices). In Europe, by contrast, the general adverse scenario was adapted to each member state.

To understand what this entailed, we need to examine the ways in which the adverse scenarios were discussed. Economists of the ECB's European Systemic Risk Board[26] proposed general considerations to include in scenarios such as "a deterioration of credit quality in countries with feeble demand" and "the lack of necessary bank balance sheet repair to maintain affordable market funding."[27] After 2014 and taking into account the criticisms about the first stress tests, the main variables of the scenarios were eventually a drop in gross domestic production, a drop in real estate market prices, and a drop in the prices of sovereign bonds. These variables were then translated into national scenarios. Representatives of member states were engaged in lengthy negotiations at that point, as they were eager to define stress conditions that they considered representative of their national situations. These negotiations were related to which countries should be submitted to the strictest conditions and whether countries that were already facing problematic situations regarding their financial situations should be tested against the most stringent scenarios. Eventually Greece and Cyprus, which at the time were each in the midst of a sovereign debt crisis, had to test their banks according to scenarios in which the values of their sovereign bonds were much lower than those of other countries. There were other differences for other parameters as well, and member states attempted in some cases to negotiate for what they construed as the particularities of their situation. For example, French banks did not foresee a sudden decrease in real estate prices, but the designers of the stress tests considered that such events had to be included in the adverse scenario.

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France eventually lost this negotiation, and this example is just one of the many negotiations among member states about the scenarios.

Getting into the details of these negotiations and what member states traded and for what results would be a difficult task. But more interesting for our concern here is what these negotiations say of a new European object: the testable bank. Testable banks were individual entities defined by their assets and compared to one another. They were also national banks. Because they were assessed against a scenario defined according to a national context, they were expected to operate within the national economy of the member states to which they belonged. In problematizing banks as testable entities in those terms, the European stress tests redefined the crisis that was expected to spur a European reaction. Rather than a global shock affecting the whole economy, the crisis became the addition of adverse parameters in the economies of each member state. Banks were then made "European" in the stress tests but in this particular sense. Framing banks as such was not a neutral choice and has been contested. Some critics argued that the scenarios had little value if what was to be tested was the next crisis. One commentator put it this way:

> Stress tests are perfectly useless . . . : what one needs to test is not a 5% recession, it's the bankruptcy of Bank of America and JP Morgan. But since they are systemic banks, . . . they will bring all the other banks down with them. So there's nothing to "test." The only thing to do is to eradicate the systemic aspect, that is: separate banking activities, decrease financial speculation, cut down big banks into smaller ones.[28]

The argument is telling. It involves considering that if indeed a crash similar to that of Lehman Brothers was the initial condition, then testing individual banks situated in national economies made little sense, since the overall system would be threatened. This echoes another criticism voiced by well-known academic economists who contended in several research papers that stress tests made it impossible to evaluate the systemic effects of any meaningful financial crisis because of their focus on individual banks.[29] These economists[30] argued that the choice of framing banks as individual entities assessed according to whether they were capitalized enough had no hope of grasping the conditions of a financial crisis, which they considered to be a necessary systemic event.

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PROBLEMATIZING NUCLEAR PLANTS AS RISKY ENTITIES THREATENED BY NATURAL DISASTERS

After the Fukushima accident, the nuclear stress tests were not the only policy instrument targeting the safety of nuclear energy. However, they might have been the only policy instrument that made the individual nuclear plant the central focus. Consider, for instance, the German decision to withdraw from nuclear power altogether after the Fukushima accident. This decision followed decades of public debate about a potential phase-out and was taken with consideration of a particular national public in mind, sensitive to the nuclear issue and ready to demonstrate its opposition to the issue.[31] This can be construed as a political choice, possibly "political" because of the sensitivity of the federal government to electoral politics in the context of upcoming elections[32] but also in that it was framed as such by the actors involved both in Germany and elsewhere.[33] Stress tests, by contrast, did not target the role of nuclear power in energy policy and even less so the choice of phasing out or maintaining nuclear power. Energy policy in Europe is primarily a domain of member states, and the treaties provide little room for centralized European intervention. As we saw in chapter 4, this intervention has mainly consisted in recent years of setting nonconstraining renewable targets for member states and trying to promote cleaner energy through instruments such as the carbon market. Problematizing the Fukushima crisis as an issue of the safety of individual plants could then be a way of envisioning a European intervention without stepping outside the limited domain of the acceptable European intervention in energy policy.

Like the bank stress tests, the nuclear stress tests assessed how individual entities (nuclear plants) could withstand adverse scenarios, and similar to the banking stress tests, writing those scenarios was far from neutral. Scenarios were defined according to the same conditions of stress everywhere in Europe. The technical conditions about seismic events and potential flood conditions were taken into account after what happened at Fukushima. For all the external catastrophic conditions that they included, the tests were discussed very much in terms of what they excluded. Overall, Greenpeace criticized what it saw as a limited scope of the scenario:

> The EU Stress test is not a safety assessment of the European nuclear power plants. It is a limited analysis of the vulnerability of the NPPs [nuclear power plants]

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concerning natural hazards. The accident scenarios are focused on external events, the quality of the SSC (Systems, Structure, Components) and its degradation in the oldest nuclear power plants in Europe are not a subject of the analysis.[34]

The focus on external events similar to those that had occurred at Fukushima meant that the stress tests would not consider the degradation of the plant's internal components (the systems, structure, and components) as they aged. Aging has been a regular topic of concern in the field of nuclear safety, and concerns about the safety levels of the oldest nuclear plants in Europe has regularly been voiced by civil society organizations. However, aging is related to the local particularities of the nuclear industry whether regulatory, social, or economic. The problem of aging is linked to human resources issues, organizational matters within each plant, questions of how to ensure the availability of old technical components, and policy concerns about what is controlled by public authorities. Thus, how to assess aging is bound to differ significantly across Europe because the industrial and administrative landscapes vary, as do the policy priorities. The standardization of aging throughout Europe by a uniform test appears much more difficult than defining a series of external natural hazards in a scenario. In the context of the post-Fukushima stress tests, the scenario based on natural hazards could easily be harmonized throughout Europe. This scenario proposed a certain definition of the crisis in which the ability to withstand external catastrophic natural hazards became the only dimension to assess.[35] Accordingly, testable nuclear plants would be technical entities extracted from their local regulatory, social, and economic contexts.

The scenario (and associated definition of what the crisis was) excluded another element, man-made disasters, such as the crash of a plane on a nuclear plant. During the early discussions about nuclear stress tests, Germany and Austria had insisted on the inclusion of such events within the scope of the reviews. José-Manuel Barosso, then president of the EC, had similarly argued that the tests should be "comprehensive and include the widest range of scenarios, natural and man-made, focusing on their possible impact on the plants' functioning systems."[36] The eventual scenarios, however, excluded man-made accidents. UK officials claimed that safety and security were different issues that needed to be treated separately.[37] Treating them separately was also justified by the possibility of

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making the results of the tests available. The head of the French nuclear safety authority argued that that the European Council had set very high expectations of transparency and openness that could not be met if terror attacks were included in the scenarios.[38] The director of external relations at Foratom, the trade association for nuclear industry, also mentioned this concern for transparency, which he connected to what he defined as a reluctance to "make things political":

> Including terrorist attacks or cyber-attacks as stress test criteria would mean the checks will take more time and authorities won't be able to make the results public. . . . Our feeling is that citizens in Europe are waiting for the results and we should announce them without delays. People don't want to *make things political* and it's important to prove that nuclear plants in Europe are safe.[39]

Here, not wanting "to make things political" is directly connected to the possibility of providing results that are expected to be objective ("prove that nuclear plants are safe") and transparent ("make the results public"). Accordingly, the scenarios of the nuclear stress tests were meant to be technical. The word "technical" was used by the Western European Nuclear Regulators Association (WENRA), an umbrella body for the national regulatory agencies of nine member states and Switzerland that acts as a technical support for ENSREG, as it proposed "an independent regulatory *technical* definition of a stress test."[40]

The use of the "technical" and "political" epithets by the actors involved in the nuclear stress tests says a lot about how they problematized the crisis and the appropriate European answer to it. Rather than critically reexamining the role of nuclear energy policy and the vulnerability of nuclear plants to the broadest possible range of threats, the nuclear stress tests were to focus on well-defined events. This choice restabilized a narrative of the Fukushima crisis (a consequence of unforeseen external events) at the expense of others (for instance, a problematic organizational structure of the Japanese nuclear industry or an intrinsic problem of nuclear energy in the first place). Using the terms "technical" and "political" also framed the European response to the crisis as a uniform evaluation of the same external criteria, which did not require the local adaptation of the scenario (as it would have been if aging had been included) or a redefinition of regulatory boundaries (e.g., between safety and security).

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WHO SAYS WHETHER THE TEST IS VALID, AND WHO ATTESTS?

Connecting trust with objectivity and transparency implies that an institution is expected to act as a trustworthy examiner of technical objects. The first banking stress tests in 2010 and 2011, which were conducted by the newly founded EBA, had been problematic in that regard. An official at the EC involved at the time recalled the tests in these terms:

> In spite of EBA's actions, there was no way to calm the markets down and to re-create trust. . . . You would be told "European banks are not robust," and you would answer "they are, there has been stress tests!" only to hear "yes but stress tests are not credible." What's a credible stress test? One could talk about it, but that didn't solve the problem at the time.[41]

That the Belgium bank Dexia passed the 2011 stress test shortly before going bankrupt was then seen as visible proof that the European stress tests were not credible. The official quoted above argued that the way to solve this problematic situation had been to redefine who was in charge so that person became an uncontested authority. The EBA, created in 2011 in the wake of the financial crisis, had to refer to an expert body that could ensure the credibility of the test. The official quoted above told the story as follows:

> At one point we said "we need to come out of this situation in a good way." . . . We're in a situation where the only institution which seems really credible is the European Central Bank. . . . During the crisis, the ECB was the European institution that made the difference. Whereas European leaders had trouble agreeing among themselves about what to do, ECB and Draghi's famous "whatever it takes" avoided the catastrophe. There, it was the starting point of our reflections about the unique supervisor.[42]

Thus, the role of the ECB became central in the 2014 stress tests and in subsequent ones. The ECB supervised the EBA, which then played only a supporting role. The European response to the financial crisis has been described as a movement of centralization and of extension of the European executive power at the expense of intergovernmental control[43] and even democracy itself.[44] The extension of the ECB's power during the 2014 stress tests can be described in those terms. This extension was attended by a redistribution of the loci of negotiation, as the adaptation of scenarios in each member states was fiercely debated, and the ECB's supervisory teams had at least one supervisor of a nationality different than that of the bank being assessed.[45] This redistribution still made the ECB the

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central institution in the production of expertise. In ways that echoed the imagination of expertise as being purified from external influences that we already encountered in European discourses, I heard an official at the ECB in charge of the bank stress tests describe the objective of granting their control to the ECB as follows: "We needed someone more impartial, and more efficient. We needed to get rid of the somewhat incestuous link between a sovereign state and its banking system."[46] The source of objectivity and transparency would be the ECB, an organization already meant to be the epistemic authority on financial matters.

The comparison with the nuclear stress tests is telling, as no such centralization of expertise occurred in this case. Expertise on nuclear safety was examined at the European level by ENSREG, which brought together experts from all the member states (including nonnuclear ones) and the EC. ENSREG operates in ways close to other expert groups that the EC uses both as providers of expert knowledge able to support executive action and as platforms for negotiations among representatives of member states and the private sector.[47] ENSREG itself relies on yet another technical body, WENRA, which is the umbrella organization for the national nuclear regulators of all the nuclear member states.

When WENRA defined the stress tests as "technical" operations, as we already saw, it also considered that it was the expert institution able to validate their outcomes. In its initial proposition, WENRA suggested that each national regulator review the assessment conducted by national nuclear plant operators. There would then be a general circulation of information whereby each participant country in WENRA would see how the others' tests went. This initial proposition resembled what WENRA regularly does when organizing collective assessments of national regulators' practices. The EC did not, however, see this as satisfactory. Commissioner Oettinger made this clear:

> We will not be sitting in our ivory tower and we will not be naively accepting the results provided by the national authorities. We will be using mixed European teams and we will have the option of visiting the nuclear power plants ourselves. The European teams will be made up of nuclear experts from the various Member States and Commission officials.[48]

While WENRA envisioned the test as a collection of national assessments that it could easily supervise, Oettinger proposed that an original

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European ability to attest be constituted. ENSREG accordingly organized European teams made up of experts from both the member states and the EC, thus constituting a European way of certifying the validity of the tests. ENSREG's specifications of the stress tests ultimately combined self-assessment and peer review, the latter being a condition for attesting the validity of the former. Who the peers were was then a central issue. Would they be, as WENRA envisioned, representatives of national regulation agencies of nuclear states, or would representatives of all member states (including the nonnuclear ones) be included, as nonnuclear member states such as Austria argued for? ENSREG defined the necessary conditions to act as peers in the following terms:

> It is understood that any qualified person contracted by a national regulatory organisation to this end is considered as a member of the pertinent national regulatory organisation in the context of the Peer Review mechanism. . . . All Members of ENSREG are entitled to propose experts for these Peer Reviews.[49]

Finally, peer groups would be composed of representatives of nuclear and nonnuclear member states and of the EC.[50] Representatives of member states would then participate in the evaluation of stress tests conducted in other member states. While the distributed composition of the teams, made up of representatives of diverse member states, echoes the network system characteristic of the EC's expert groups,[51] it also raised an issue about excluded actors, namely civil society organizations. Even though some of them asked to be included in the peer-review process, there was actually no specific mechanism for their inclusion in the peer-review teams. Member states had to compose their delegations and could then choose whoever they deemed qualified, including civil society experts. Although the EC suggested that the peer-review teams include the latter,[52] only Austria made that choice.[53]

The composition of the European peer-review teams can be understood as a compromise.[54] Contrary to WENRA's expectations, all member states (and not only those using nuclear energy) sent representatives to participate in the evaluation. Instead of juxtaposing independent national evaluations, the post-Fukushima stress tests were conducted under a European gaze—European because it emerged not from a centralized locus of authoritative vision (as with the ECB in the case of the financial stress tests) but instead from ENSREG's diversely composed European

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peer-review teams.[55] Yet contrary to what nongovernmental antinuclear organizations had asked for, it was only through the member states that the participation in peer groups would be possible. If the nuclear stress tests were made to restore public trust, they did so primarily for the benefit of a passive European public, expected to accept what came out of the process, and not for the sake of a concerned European public, eager to directly participate in it.

THE POLITICS OF EUROPEAN TRANSPARENCY

Both the banking and nuclear stress tests articulated attempts at defining the objects at stake and at stabilizing the institutions in charge of evaluating them. Both instruments were expected to achieve an objective of transparency. The head of the ECB's supervisory board described the aim of the comprehensive assessment as "fostering transparency of banks' balance sheets."[56] Transparency was thus manufactured by making the ECB the central expert actor, able to see what other actors (including the banks themselves) could not for the sake of a public of investors who could witness only the end results. The fact that expert knowledge requires opacity to produce transparent assessment is well known in various domains of scientific advice for policy making.[57] The ECB, similarly, has long been engaged in a politics of transparency characterized by actions deemed legitimate because they are the outcomes of expert interventions that remain concealed.[58] The 2014 bank stress tests can be seen as an extension of this approach, as the ECB acquired a significant power of intervention over the member states and their respective regulatory agencies. In the 2014 stress tests, the ECB used its own model and contested the banks' internal data. An economist in charge of a risk modeling department in a French bank put it in the following terms:

> In 2014, the novelty was that ECB came and said "I know how to build models." And so I will be explaining to you . . . what I expect from your results. . . . In 2011, the EBA just compared the banks against each other. In 2014, the ECB said "why are your results nonconforming to my model?" without providing any transparency on its own model. Because their transparency is only one way.[59]

One of the outcomes of the 2014 stress tests was to turn transparency into an asymmetrical operation in the hands of the ECB. This asymmetry

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was further developed in that the ECB also acquired the power to force banks to increase their capitalization. This was made possible by a regulatory evolution situated within the Banking Union project, which granted the ECB a wider power of supervision of national banks over a national regulatory body in the context of a "Single Supervisory Mechanism" introduced in 2014.[60] The ECB became an institution able to compare banks to one another, evaluate their situations, identify those that failed the test (eight banks failed the 2014 stress tests,)[61] and eventually act on them in constraining ways by forcing the weakest ones to adopt recapitalization plans. The outcome of the banking stress tests was a mechanism for transparency that relied entirely on the ability of the ECB to act as an expertise institution able to tell what and where technical issues are and intervene accordingly.

ENSREG provides a striking contrast. First, the evaluation based on the European peer review team does not rely on a centralized ability to assess and constrain. ENSREG's final peer review report concluded that the current standards for risk calculation were not applied in 54 reactors (for earthquake risk) and in 62 reactors (for flooding risk) out of the 145 checked. The report revealed that many international standards had not been applied and recommended several plant-specific "technical improvements."[62] These conclusions did not lead to constraining European action and even less so to the closing of nuclear plants. Rather, ENSREG and the EC, prompted by the European Council, asked national regulators to submit nonconstraining "national action plans,"[63] which would then be subjected to a peer-review process organized according to the rules crafted during the stress tests. Antinuclear organizations used the peer-review reports and the national action plans to critically examine the safety levels of nuclear plants.[64] But the transparency of the nuclear stress tests did not mean that these organizations had alternatives for examining the conduct of the stress tests other than by participating in the European peer-review teams through the member states.

A second difference between the transparency of the banking and nuclear stress tests lies in the very definition of "test." The nuclear stress tests defined the objective of "assessment" differently compared to the banking stress tests. While the banking stress tests singled out problematic banks that required immediate interventions, the nuclear stress tests

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were not intended to render the safety levels of nuclear power plants comparable in the eyes of a centralized European body. The transparency of the nuclear stress tests was not about displaying which nuclear plants were problematic; it was never related to a European ability to compare and provide the results of that comparison. This might seem surprising when compared with the bank stress tests but is much less so when situated within the European regulatory landscape of nuclear safety. Because member states are in charge of the administrative control of nuclear safety, the European intervention acts only at a coordinating level under the general objective of "continuous improvement." This expression, used before 2011 in European nuclear directives regarding nuclear safety regulation,[65] points to a form of coordination between nuclear member states whereby information is exchanged but no comparison between national safety levels is made. While initially envisioned as a test that plants could pass or fail, the nuclear stress tests were eventually integrated within the existing practice of continuous improvement, which they extended by making the peer-review teams "European."

FROM STRESS TESTS TO INSTITUTIONALIZED EUROPEAN INTERVENTIONS

The banking and nuclear stress tests were more than ad hoc reactions to situations framed as a crisis. They led to further institutionalization of the mechanisms articulating objectivity and transparency for which they had been experiments. The 2014 bank stress tests had turned the financial crisis into an issue of ensuring that individual banks had enough capital relative to the respective threats to the economies of their countries of origin. They were followed by other stress tests in 2016 and 2018. These subsequent stress tests confirmed that the ECB had become an expertise institution able to evaluate the European banks and compare them against one another. Yet the most recent stress tests differed in that they were conceived as instruments that were expected to be mobilized *after* rather than *during* the crisis.

Like the previous ones, the 2016 and 2018 stress tests were based on scenarios produced by the ECB and adapted to national circumstances after negotiations among representatives of member states. But contrary

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to the previous bank stress tests, the 2016 and 2018 tests did not signal which banks had passed and which had failed,[66] nor did they use limit values beyond which banks were asked to recapitalize themselves. Rather, they were meant to provide information for the ECB about the situation of the banks' assets.[67] This was a significant development. It turned stress tests into instruments intended to provide the ECB with information about banks' assets, no longer tasked with identifying who passed and who failed.

The proximity with the objective of "continuous improvement" central in European nuclear regulation is visible here. This objective was further rehearsed after the 2011 nuclear stress tests, since self-assessment and peer review, as they had been conducted in 2011, were institutionalized in the European regulation through the 2014 Nuclear Directive.[68] The 2014 directive can be read as a stable inscription in regulatory texts of that which could have been an ad hoc initiative taken in the wake of the 2011 catastrophe. The directive was intended to integrate the "lessons learnt" from them into the European regulatory body[69] while pursuing the objective of "continuously improving safety."[70] Self-assessment and peer reviews had been mentioned in previous European texts on nuclear safety (including the 2009 directive), but in those texts each member state was asked to define its own topics for self-examination.[71] By contrast, the 2014 directive envisioned common issues for all member states to work on. The directive stated that "topical peer reviews" were to be conducted at the European level every six years, under the gaze of European peer-review teams modeled on the stress tests.

Contrary to the stress tests, the topical peer reviews were designed not to evaluate how nuclear plants could withstand adverse scenarios but instead to assess the European nuclear power plants according to specifications that would be published by WENRA.[72] Instead of examining how nuclear plants would react to catastrophic situations, the objective of "continuous improvement" then became reliant on the articulation between self-assessment and peer review that had been experimented with during the stress tests. The articulation of objectivity and transparency experimented with during the 2011 stress tests was then inscribed in the European regulation, which meant that European intervention on nuclear plants was defined as "technical." This is visible when considering the first "topical peer review," that on aging. As discussed above, aging

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had been one of the topics that Greenpeace said should have been included in the 2011 stress tests. Yet the way it was problematized in the topical peer review was not satisfactory for the antinuclear organization. A Greenpeace nuclear expert described this choice as "technocratic" in that it reverted the definition of the entity expected to be assessed to national regulators, defined aging as a set of isolated technical issues, and thereby rendered the overall examination of plant aging (including, for example, considerations related to their economic value, the increasing terrorist threat, and the variety of sociotechnical solutions) impossible to discuss.[73] Because self-assessment and (European) peer review were enshrined in European law, the transformation of the post-Fukushima situation into an issue related to the technical management of the individual nuclear plant appeared definitively successful, much to the dismay of critics such as Greenpeace.

NORMALIZING THE CRISIS

The banking and nuclear stress tests shared a narrative of trust being the outcome of objectivity and transparency. However, objectivity and transparency translated into different operations. In the nuclear case, objectivity meant that the nuclear energy issue was turned into a matter of examining nuclear plants defined as technical entities, not meant to be comparable to one another and intended to progress in a process of continuous improvement. Transparency relied on the mobilization of European peer-review teams and on the publicization of the results for the benefit of a general public expected to trust the outcomes of the process. The banking stress tests proposed a version of objectivity whereby banks were described as individual and national entities defined by their assets. After the initial difficulties that the banking stress tests encountered, the ECB became the sole expertise institution in charge of evaluation and constraining intervention. Objectivity and transparency would be realized by the ECB for the benefit of investors eager to know the true state of banks' assets.

We can now further develop our exploration of European objectivity started in chapter 5. The differences between the ECB and ENSREG's expert groups echo the opposition discussed in chapter 5 between a would-be centralized European ability to evaluate technical objects (of which the ECB is the prime example) and the frequent distributed practices of

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European expertise that can be described as manifestations of interested objectivity (of which ENSREG and the European peer-review team provide yet another illustration). The ECB appears as a very particular case, perhaps the only one within the rich landscape of European expertise where the European institution has the ability to act as an authoritative expert institution in charge of defining and governing European objects and able to determine what is made public and what remains opaque. Nuclear stress tests offer an alternative proposition for European objectivity in which the ability to tell what objects are is distributed. In both cases, stress tests functioned as "object-ification" operations, in that they turned large-scale policy issues into matters of European objects. This operation offers additional ways of action at the European scale that have consequences for how public problems are framed and who is involved. The financial crisis was redefined as a threat to individual banks' assets because of particular conditions in national economies. Individual and national banks became regulatory targets, to the dismay of the critics of the existing financial system. Antinuclear organizations sought to critically examine wider issues connected to nuclear safety, such as aging and terrorist threats, if not the relevance of nuclear energy altogether. But these concerns were carefully sidelined throughout the nuclear stress tests.

Thus, the European interventions conducted in the wake of the financial and nuclear crises reveal an ambivalent situation and force us to question the narrative of crises as opportunities. Crises are often narrated as the impetus for greater and more coordinated European actions and possibly for extending the European project to new domains such as financial stability and nuclear safety. The institutional constructs that ultimately emerge from stress tests indeed extend the perimeter of European actions. But they do so by "normalizing" crises in the dual sense that their outcomes enter the realm of the normal and that their consequences are governed by norms that redefine technical objects. European objects, once again powerful levers of policy action, are both a vehicle for this process and an outcome of it. To understand the consequences of the European responses to crises, the language of "success" or "failure" ought to be manipulated with caution. The new powers granted to the ECB after the financial stress tests might be seen as a successful example of European integration, but this description only works if the expectations about what integration should

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be about are not challenged. Integration here meant reproducing the dreams of disentangled markets and purified science and further isolated European objects such as banks and the euro itself from political discussions. Similarly, if we interpret the nuclear stress tests as failed attempts at objectively assessing the true state of nuclear plants thanks to additional expert capacity at the European level, we risk missing the importance of connecting the technical evaluation of risks with public concerns. The nuclear stress tests might well be a missed opportunity but not because they failed to realize the dream of objectivity. They showed that the definition and evaluation of technical objects are sensitive topics of negotiation, and the European gaze assembled by peer-review teams proves that the ability to attest the results of stress tests can be distributed in ways that aggregate various positions and expectations. Thus, I see the nuclear stress tests not as misguided attempts veering away from what objectivity should be but instead as suggestions that more sophisticated technical evaluations are possible. If there is a failure, then, it is related to the difficulty of cultivating these suggestions in ways that do not eliminate broader definitions of nuclear plants' risks and exclude the most critical actors, and possibly contribute to preparing the EU for future crises.

These considerations lead me to the final discussion of this book: the potential contributions of European objects to the seemingly never-ending crisis that the EU faces. We now understand that objects provide powerful levers of action but that the connection between their technical examination and the representation of collective concerns is challenging. We now also sense that there is a deeper challenge: is it possible to respond to crises not by reaffirming the dreams of the disentangled market and objective science but instead by reimagining them? This requires no less than a constitutional reflection, as I will argue in the concluding chapter of this book.

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CONCLUSION: OBJECTS THAT MATTER

DEMOCRATIC TENSIONS AND HARMONIZATION CONFLICTS

I opened this book with Boris Johnson's play on the opposition between technocratic dreams of science and the market and his own appeal to raw political strength able to connect at last with people's everyday concerns. Brexit has been an illustration of the opposition between technocratic dreams and populist appeals, but this is a quandary that runs deeper in the contemporary liberal democracies that have developed complex regulatory tools to govern technical and economic problems and made science and the market the necessary ingredients of would-be harmonious societies. In the European Union (EU), a one of a kind institutional construct based on a machinery of treaties and regulations, the promises of peaceful integration thanks to science and the market always threaten to leave people's concerns aside, and harmonization has never fully realized its promise of social harmony.

The previous chapters have told many stories of conflicted attempts at harmonization, as the dreams of disentanglement and objectivity function on the hypothesis that the technicalities of market organization and scientific expertise can be isolated from political concerns. But the examples we encountered have also illustrated the strength of the regulatory machinery when it uses standardized material or immaterial objects to

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extend the perimeter of its interventions in domains as diverse as food, human health, finance, and the environment. The previous chapters have also shown that actual practices of harmonization often mix the technicalities of science and the market with political considerations. Is it then possible to harness the power of the regulatory machinery while making it more attentive to people's concerns? Can the deadly opposition between the cold rationality of dreams of harmonization based on science and the market and the vividness of everyday lives be avoided? In these concluding pages, I want to discuss how our reflection on European objects can help us find positive answers to these questions. This requires examining the public in the name of whom object-based interventions are conducted. What I am interested in is a constitutional question not in reference to a written constitution—the attempt to pass one for the EU has been a remarkable failure—but instead in terms of analyzing the ways in which public institutions define the conditions of their legitimacy. If the dreams of disentanglement and objectivity tend to situate objects beyond the perimeter of political deliberation, other approaches to European objects make them explicit political entities. How to undertake a constitutional reflection from the latter is a challenge that deserves to be met.

THE AMBIVALENCE OF THE ECONOMIC CONSTITUTION

In 2005, the proposed European Constitution failed after France and the Netherlands rejected it through popular votes. Since then, the known mechanic of the treaties has replaced any constitutional ambition that the EU might have had. Scholars had been speaking about an unwritten constitution of Europe for years, though. The terms "economic constitution" have been used to describe a form of collective ordering that is the source and the desired outcome of European integration. Legal scholar Christian Joerges explains that the unwritten "economic constitution" bases the European project on "the legal ordering of the economy, the economic freedoms . . . , a system of undistorted competition, and an economic policy 'complying with judiciable criteria.'"[1] The economic constitution is an imagined collective order, inspired by German ordoliberalism,[2] whereby European integration stems from well-functioning markets, economic policy is carefully distinguished form social policy,

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and member states accept that the organization of the European markets falls beyond the perimeter of national sovereignty. This is an originality of the European institutions and a crucial element of their differences from nation-states. Within the economic constitution, the beneficiary of European integration is a consumer benefiting from the increased choices and lower prices of effective competition or a producer able to freely participate in market exchanges because of vanishing trade barriers. If there is such a thing as a European citizen, he or she is, within the economic constitution, an economic agent.

Since the expression "European citizenship" was introduced in the 1992 Maastricht Treaty, the content of this citizenship and the rights and duties it conferred have puzzled policy analysts and legal scholars. These debates have underlined the enduring strength of a notion of citizenship based on economic rights, what is sometimes described as a "market citizenship," and would be about the ability to produce and consume market goods and services. Understood in those terms, European citizenship is closely articulated with the European objects that are market entities. The more recent extension of citizenship law in Europe has not significantly rewritten this market basis. Legal scholar Loïc Azoulai has shown that the European Court of Justice has relied on economic freedoms to define individual rights,[3] even as citizens' rights have become an explicit concern of the European institutions. As Azoulai says, "the development of the legal regime of European citizenship has been conducted under the forms and according to the methods of the legal domain from which it claims to liberate itself, namely the law of the internal market."[4] Accordingly, the legal proceedings at the European Court of Justice about citizenship's rights refer to the freedom of movement and nondiscrimination as grounding principles. What matters in the eye of European law is the ability to make all citizens "European" and able to act as equivalent economic agents throughout Europe.

Our reflection on European objects provided illustrations of the economic constitution and shows that problematizing European objects often means imagining an economic agent as a crucial contributor and ultimate beneficiary of European interventions. The most telling example was perhaps that of the CE-marked consumer products, which I discussed in chapter 2 in the case of construction products. Here, the attempt at

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harmonizing European markets is conducted through product labeling and for the benefit of an imagined figure, that of the individual economic agent, either a consumer eager to ponder her or his choices using the information provided by the labels or a producer putting new products on the market. The European Commission (EC) extracts products from their contexts of production and use and is vigilant about the boundary between the domain of market technicalities and that of mandates negotiated with member states. The EC exercises what I call a "power to disentangle" that seeks to purify market exchanges from what it sees as political disturbances prone to introducing barriers to trade. In doing so, the EC imagines an ideal economic space, an "economy without qualities," where standardized objects only characterized by CE marking circulate and where companies and consumers freely choose what to produce and what to buy. The never-ending objective of a fluid energy market across Europe, where electrons and molecules would be extracted from the multiplicities of their ties to national policies and concerns and where producers and consumers would act as rational economic agents able to make cost-benefit calculations, is another illustration of the dream of the disentangled market.

The manifestation of this dream can be extended to European interventions targeting human beings and turning them into circulating economic entities. Consider, for instance, the case of posted workers. The topic has been debated since the mid-1990s, with the EC and member states on opposite sides. The EC has been eager to ensure the free circulation of services, which includes the circulation of the workers themselves, expected to be able to work across the EU. Member states have been reluctant to dilute national frameworks of workers' rights for the sake of a harmonized market of services. Early court cases gave the upper hand to member states, as they interpreted the 1996 Posted Worker Directive in such ways that the host state regulations were the most important.[5] The subsequent legal disputes and what legal scholars have labeled the "New Approach" of the European Court of Justice nuanced this interpretation, though.[6] Within this New Approach, the minimal conditions that posted workers must meet in the country where they work—including, for instance, working time and minimal wage—must be known and respected. But what these "minimal conditions" are is often controversial, particularly in areas where collective agreements between unions and industrial

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organizations define more restrictive working conditions than what the national legal framework lists. Take, for instance, the case of the Lindsey strike in Britain, which in 2009 became famous for the motto "British jobs for British workers." The unions calling for the strike had concerns about whether foreign workers were provided with the same working conditions (e.g., a paid tea break, included preparation time, and daily travel allowances) as those defined in collective agreements that were more favorable to workers than the national regulation. The unions saw these discrepancies as sources of "unfair competitive advantage."[7] This episode is telling. It confronted in all too visible ways would-be European individuals expected to be disentangled from local conditions of work and local ones eager to operate within a social space defined by protective regulations. The middle-ground position crafted by the European Court of Justice as it interprets the Posted Worker Directives supposes that it is possible to unproblematically list working conditions. This position imagines that each member state lets its local working conditions known, which eventually can organize a fair space of competition at the European level. But in many cases, collective agreements result in significant variety across industrial sectors (so much so that certain member states entirely rely on collective bargaining to define minimal wages). Yet as a legal scholar remarked, the New Approach of the European Court of Justice "displays a tendency to deal with the existence of normative pluralism in labour standards by restricting and suppressing it."[8]

The European law of posted workers shows that many of our discussions of European objects can be extended to European initiatives targeting human subjects. Posted workers are expected to be disentangled from their home country and work elsewhere, circulating in an imagined well-organized European space of competition. As with CE-marked construction products and liberalized electricity and gas, this results in tensions involving local conditions and national concerns and also signals the ever more visible consequences of such initiatives in terms of democratic accountability and consequences for the protection of local practices. The motto of the Lindsey strike "British jobs for British workers" can then be read less as a nationalistic call excluding foreigners than a reaction to the European attempts at harmonizing the market of circulating posted workers in ways that cannot integrate the diversity of local labor conditions.

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The dream of the disentangled market at the heart of the economic constitution is only painfully realized. Yet it remains a common reference including in situations such as energy and labor, where it faces pervasive difficulties. One of the reasons for this persistence is that acting on and through market objects has proven to be a powerful lever at the European level to reach policy goals that go far beyond the perimeter of market harmonization. Introducing immaterial carbon permits was a way of constructing a new market from scratch meant to be neatly separated from disturbances seen as political and of conducting a European climate policy. When human subjects become disentangled market entities as posted workers, then, they become instruments used as proxies for conducting a de facto European labor policy.[9] We saw in chapter 3 that rural development, human health, and financial stability were objectives of the standardization of geographically labeled food products, tobacco products, and credit-default swaps.

Extending the perimeter of European action by virtue of market objects has proven that European objects can be endowed *with* qualities, tied to public concerns related to food and health, and that the human subjects for whom they are manufactured can be individual or collective actors who care about what they produce, what they eat, and what they breathe, in short much more than abstract calculators of costs and benefits. But this mode of intervention has also relied on constraining standardization processes to which access is unequal at best. Its legal grounding is the harmonization of the Single Market strategically used for the sake of wider policy goals, resulting in under-the-radar yet significant extensions of European executive power and leaving little room for exploring the possibility that some entities, be they risky objects or human beings, should not become *market* objects at all. This has led to remarkable failures of disentanglement. The European market of immaterial green certificates modeled after the carbon market that I discussed in chapter 4 has never materialized. Instead, sustainable energy has been relocalized in member states, and its ties to national industrial preferences and local development have been reaffirmed. The practices of market making illustrate the ambivalence of the economic constitution and force us to question the role of markets in the European project. Is it possible to rethink the interventions on market objects so that the art of European government is still about organizing

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markets while markets are not thought of as separated from the realm of public concerns, interests, and affects? Can one envision a way of turning abstract disentangled markets into explicit concerned markets? We have seen signs that these evolutions are possible. But doing so would involve a radical redefinition of the dream of disentanglement, which would not hope to extract markets from their social and material ties but would cultivate these ties and make them topics of collective examination.

CAN THE ECONOMIC CONSTITUTION DEAL WITH SCIENTIFIC ISSUES?

For all the persisting strength of the dream of disentanglement, the economic constitution originating from the Treaty of Rome has radically evolved, so much so that legal scholar Christian Joerges wrote a "melancholic eulogy" to it in 2013.[10] Joerges argued that the ordoliberal approach to European integration had been strengthened by the Monetary Union and the Stability Pact, which pursued the integration of the European economy while still leaving redistributive social policies to member states (but with more and more constraints). But he also considered that the extension of European law to several regulatory fields radically redefined the principles and modes of action of the economic constitution. Speaking of Jacques Delors's project of "completing the Single Market" and the 1992 Maastricht Treaty, Joerges commented on the extension of the regulatory machinery:

> What had started out as a collective effort to strengthen Europe's competitiveness and accomplish this objective through new (de-regulatory) strategies soon led to the entanglement of the EU in ever more policy fields and the development of ever more sophisticated regulatory machinery. It was, in particular, the concern of the European legislation and the Commission with "social regulation" (health and safety of consumers and workers, and environmental protection) which proved to be irrefutable. The weight and dynamics of these policy fields had been thoroughly underestimated by the proponents of the "economic constitution."[11]

What Joerges labeled "social regulation" refers to the many European interventions based on objects that we examined in the previous chapters that aim to ensure the "health and safety of consumers and workers" and "environmental protection." In this piece, however, Joerges does not explore the modalities of the regulatory machinery but instead discusses

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new modes of European governance such as the open method of coordination, which is based on continuous self-evaluations and exchanges of information about the performances of member states. These approaches, usually subsumed under the terms "democratic experimentalism," make nonconstraining coordination and self-improvement central engines of European integration. Like others, Joerges points to the accountability and transparency issues that these approaches raise.[12] Thus, Joerges's eulogy to the economic constitution is melancholic in that it diagnoses both its profound redefinition and the inability of European institutions to make alternative constitutional arrangements explicit or to propose alternative approaches to decision making that would reinvent the constitutional basis of the EU in satisfactory ways.

The previous chapters can be read as explorations of empirical variations of this latter reflection. Yet the examples I discussed focused on what Joerges made only a passing reference to, namely the regulatory machinery acting on technical objects. European objects significantly challenge the neat ordering that the economic constitution imagines because they introduce technical issues in the midst of the organization of the market in ways that force the introduction of introduce explicit political concerns into market making. The examples I discussed in the first part of this book showed that the dream of the disentangled market is often at odds with actual practices, particularly in the situations I described as "concerned markets." We encountered even more complexity when I turned to the dream of objectivity in the second part of the book.

In chapter 5, I used examples related to biotechnology to demonstrate that the economic constitution could not easily add a scientific component. Although the dream of an objective science neatly distinguished from political considerations remains attractive and actively formulated at the European Central Bank, technical issues are rarely if at all governed by adding a centralized European expertise able to function independently from negotiations with concerned actors. If there is such thing as a European objectivity, it can be phrased not in terms of a pure scientific view disconnected from social concerns, interests, and priorities but rather in those of what I call "interested objectivity." Thus, the European objects related to health, safety, and the environment provide illustrations of the regulatory machinery that end up displacing the economic

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constitution. They extend what the case of energy had already illustrated, as environmental and national policy concerns made it impossible to disentangle markets of immaterial entities carrying the green value of biofuels and electricity. A telling example discussed in chapter 6 is that of the precautionary principle, inscribed in many European texts, that translates as "regulatory precaution" whereby chemicals are governed according to a case-by-case approach. Other illustrations comprise the hybrid political and economic arrangements whereby diverse biofuels and "best available techniques" coexist across Europe and the processes whereby environmental concerns are turned into technical entities described and governed by thresholds.

That the regulatory issues linked with technical objects and the risks they cause or are subjected to spur original regulatory constructs can be related to the public issues raised by science and technology. These issues pertain to questions about how to trust experts, who should participate in decision making, and what are the public facts on which sovereign power can act. These interrogations relate to the human subjects in the name of whom policy choices are made and who is expected to participate (or not) in decision-making processes. Thus, science and technology often lead to "constitutional moments" in Sheila Jasanoff's terms, that is, situations when both the principles according to which public institutions are expected to function and the ontological nature of the technical entities at stake are challenged.[13] In many respects, this is what happens in practice in European regulatory circles, as political negotiations, market organizations, and the evaluation of technical objects are brought together to conduct regulatory precaution, set environmental thresholds, or discuss the conditions of coexistence between genetically modified organisms (GMOs) and non-GMOs. In these situations, the European citizen is envisioned in ways that do not define her or him in pure economic terms and do not necessarily make her or him a passive subject expected to trust experts operating outside the domain of politics, as the dream of objectivity would have it. The political subjects that the government of technical objects convoke are often economic ones, yet not the simple rational consumer or producer that the economic constitution imagines. The case-by-case approach at the heart of regulatory precaution, the setting of environmental thresholds, and the definition

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of best available techniques all rely on the integration of actors who have economic ties to the issues at stake, and the hybrid processes that govern European technical objects are the sites where lobbying activities are exercised. Controversial objects have also led the European regulation to take concerned publics into account. Coexistence functions on both economic agents choosing the type of food products they want to buy or produce and concerned subjects ready to make sure that the development of GMOs is either limited or promoted. Other examples have provided illustrations of political subjects that were problematic because of the uncertain extent of their involvement, as in the case of the nuclear stress tests, for which the participation of civil society groups was both called for and channeled through member states.

The corresponding European interventions have to deal with the particularities of the objects themselves. We saw that the materiality of energy flows, the diverse ways of defining chemicals, and the various possible indicators to use when assessing natural and occupational environments have consequences for how European interventions are conducted. The practical regulatory innovations that follow do not refer to the dream of objective science and significantly rewrite that of the purified market neatly disentangled from political considerations. They might well be vehicles for "constitutionalization in process," in Joerges's terms, meaning they do not lead to "the writing of a text and its formal acceptance"[14] but instead relate to actual regulatory practices and their effects in terms of how decisions are made and on what normative basis. Yet the European interventions that rewrite the dreams of disentanglement and objectivity also regularly result in a distribution of power that is uneven at best. The participation of civil society groups in complex regulatory processes is a recurring issue. A deeper issue is the persistent difficulty, present in many of the cases discussed in the previous chapters, to clarify the objectives being pursued (why prioritize this or that chemicals? what are GMOs for?) and possibly opening them up to public debate.

This complicates the picture of the economic constitution. The examples analyzed in the previous chapters show that it is significantly challenged by European objects yet by no means replaced or completed by a "scientific constitution" that would result from a consistent approach to dealing with technical issues. To be fair, there are contemporary propositions for

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rethinking the articulation between science and public concerns that may have constitutional consequences. The current program of responsible research and innovation (RRI) in Europe stems from a self-diagnosed problematic relationship between science and European societies.[15] RRI originated from science policy programs supporting emerging technologies such as nanotechnology and consists of promoting a loose set of "European values" and closer relationships between scientific research and the European publics. But RRI is also regularly criticized for failing to integrate public deliberation in the setting of research priorities and even less so in the determination of what technical objects should be put on European markets and what should not. In other words, if science policy, however responsible it is claimed to be, is carefully distinguished from other policy domains, such as the regulation of markets and public expertise related to risk, then there is little hope that it can meaningfully contribute to the needed constitutional work.

CONSTITUTIONAL QUESTIONS

The everyday experience of Europe continues to be that of either a faraway bureaucracy imposing seemingly arbitrary constraints or persistent concern for market liberalization and tightly controlled public spending. Seen as such, European integration is the product of a regulatory machinery that seems to function for the sole sake of elusive dreams, that of a disentangled market and of a purified objective science, that are either irrelevant to the everyday concerns of European publics or solely pursued for the sake of the few actors benefiting from them. Yet the previous chapters have shown that these dreams of harmonization are more complicated in practice and in effect are rarely realized. In practice, the regulation of technical objects often mixes scientific evaluation, political negotiation, and market organization.

The situation as it emerges from the previous chapters seems to be characterized by an oscillation between two poles: that of the pervasive yet imperfectly realized and democratically problematic dreams of harmonization and that of the isolated initiatives that challenge these dreams in ways that are routinely criticized and are never exposed as being steps for a renewed European project. There are two possible readings of this

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situation. The first one sees in it the manifestation of a hopeless mechanism that transforms large-scale problems into matters of object making. In this reading, the oscillation between the pervasive dreams of harmonization and the initiatives that challenge them is barely meaningful, since the European machinery will end up de-politicizing public problems by either explicitly excluding them from the domain of the political (when objects are governed as disentangled market products or technical entities seen by objective science) or crafting regulatory processes that are so complex that they are de facto reserved to experts, bureaucrats, and skilled lobbyists. This first reading is pessimistic about the future of European construction, since it leads to either wishing for a general upheaval able to rephrase the entire process of European regulation (but conducted by whom?) or getting rid of the European project altogether.

The second reading is more optimistic and seemingly more modest. It consists of considering that making and regulating technical objects are what Europe knows how to do and are the main vehicles through which European policy is conducted. These interventions are powerful modes of action with global consequences, as, for instance, global corporations need to adapt to the European regulation of chemicals.[16] The object-based interventions are possibly related to numerous pressing concerns of contemporary societies, be they related to the environment, human health, or consumer needs. In this second reading, European objects are also the practical manifestations of European policies and potential entry points for rethinking the all too general dreams of the disentangled market and purified science. Understood as such, European objects deserve careful consideration in order to make them entry points for a renewed European project.

It is at this point that the second reading is far more ambitious than it seems and, I argue, ultimately epistemologically more satisfactory (as it accounts for the actual practices of harmonization) and politically more relevant (as it builds on Europe's own resources to extend the European project). Grounded in actual regulatory practices and offering perspectives for connecting them to people's concerns, this reading suggests that there is a way out of the deadly opposition between the cold rationality of technocracy and the raw exercise of politics rejecting expertise altogether. But this way out demands a work that is constitutional in the

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deepest sense of the term. This work has several dimensions. On the theoretical level, it requires considering that the definition and regulation of European objects are political operations and are not outside of politics, as the dream of pure market and pure science would have it. This has at least two consequences on the institutional level. First, asymmetries need to be corrected in terms of who has access to the sites where objects are problematized. Examples of these asymmetries abound in the cases we encountered. We saw that the proliferation of technical negotiations required by regulatory precaution automatically excluded actors with fewer resources (chapter 6) and that the fragmented landscape of diverse green certificates provided much leeway to unscrupulous companies eager to benefit from differences in taxation systems (chapter 4). Second and perhaps even more challenging, taking the constitutional strength of European objects seriously requires elaborating a politics of representation based on objects. We saw that European policies have the ability to turn public concerns related to chemicals, the environment, human health, and energy sources and translate them into regulatory discussions about technical objects. The crucial issue is then to ensure that the identification of these concerns takes into account the diversity of actors for whom objects matter. This might lead to considering that certain objects are more desirable than others, such as instance environmental concern being defined by thresholds and thereby rendered as visible to the eyes of concerned publics rather than as best available techniques whose environmental performances are uncertain by design.

FROM MATERIALITY TO EUROPEAN OBJECTS THAT MATTER

An even more ambitious step is then to consider that this perspective offers resources for rethinking the role of the European political subject according to object-related concerns. On this point one can build on the works of science and technology studies scholars such as Noortje Marres, who analyzes citizen engagement processes tied to the materiality of the mundane objects that connect individuals with larger issues.[17] Marres's perspective sees public participation not as an answer to the "problem of extension," which would consist of including an ever larger number of participants in decision-making processes, but instead as a way of addressing

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the "problem of relevance" for which the important democratic issue is to ensure that those who are troubled with certain issues can voice their concerns.[18] Marres speaks of "material participation" to qualify her political theory, and this provides an inspiration for us to explore the potential democratic value of European objects. Her approach suggests that we connect the materiality of European objects with "matters of concern" transcribed in regulatory languages.[19] These matters of concern regularly provide the impetus for turning technical entities into objects governed by European interventions, as shown by examples such as food products characterized by their geographic origins, chemicals suspected of adverse environmental effects, and energy originated from sources deemed greener than traditional ones. All of these European objects are directly linked to collective concerns that affect the lives of millions of Europeans. They are both parts of the regulatory machinery and connected to people's values. As such, there is no reason for these objects to remain technocratic creatures, but they can constitute the core of European policies that answer pressing public problems. These objects can be powerful vehicles for both policy interventions and European objects that matter.

Rethinking the terms of harmonization then appears as a necessary condition for considering European objects as objects that matter. At this point in our reflection, this task is necessarily partly speculative. But it can build on what we encountered in the previous chapters, namely many illustrations of how the regulatory machinery integrates public concerns by qualifying objects, be they cigarettes signaled for their risks, protected food products, risky chemicals, or drinkable water. From there one can explore how to build additional capacities for institutional attention. A sign that these additional capacities are needed is that we encountered many situations in which European interventions (often at the initiative of the EC) attempt to pursue a dream of harmonization based on science or the market, which fails to connect with the preoccupations of the actors involved. We saw that the replacement of national labels by the CE mark for construction products and the introduction of market instruments meant to harmonize energy markets risk ignoring many national and local concerns. But the more sophisticated versions of harmonization are not ready-made solutions to the problem of defining European objects that matter. The example of chemicals regulated under the case-by-case

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approach shows that alternatives to the dreams of harmonization can result in bureaucratic systems that remain stubbornly opaque.

What these considerations show is that if there are avenues for rethinking the dreams of harmonization in ways that build on European objects that matter, they require institutional works through which matters of concern can be identified and dealt with. This invites us to envision a European politics based on the ability to represent public issues through European objects and that associates political subjectivity with object-mediated concerns. Thinking in those terms is at odds with the understanding of European citizenship in purely economic terms. Instead of turning workers into disentangled market objects, it would lead to characterizing and protecting local work environments in terms that matter to those who occupy them. Instead of seeing the European citizen as a consumer defined by the range of the choices provided to her or him, it would ground European citizenship on the ability to voice concerns about objects that matter for Europeans. Mattering, in this sense, is about relocalization but in a broad understanding of the term, which encompasses both the ability for people to make what they care about known—by, for instance, arguing for the protection of food products, the control of chemicals, or the need to account for the carbon cost of extra-European consumer goods—and the possibility of mediating Europe-specific values and expectations through the qualification of objects. Relocalization here has a territorial dimension, situated in both people's daily lives and a European territory that set boundaries constraining internal and external objects, and also points to richer types of attachments between citizens and the functioning of the regulatory machinery.

What are the consequences of this approach for the dreams of harmonization based on science and the market? First, this approach suggests that we displace the dream of purified science to consider that European objectivity is inherently tied to regulatory objectives on the one hand and to the concerns and needs of the actors involved in its production on the other hand. As such, it can be labeled an "interested objectivity," as I discussed in chapter 5. This original mode of producing objectivity can provide crucial resources for dealing with science-related public issues. To do so, the original mode requires careful institutional reflection about the asymmetry issues we discussed above. Second, a European politics based

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on objects that matter does not oppose national sovereign choices to a domain of European sovereignty based on the market but instead sees the legitimate source of European action in an ability to articulate collective concerns with the organization of many markets. The examples we encountered about energy and the environment and the recent literature on "concerned markets"[20] show that this articulation is possible. This perspective consists of repoliticizing market objects. It can be extended, beyond the organization of the Single Market, to the European economic and monetary policies. Economists' propositions about "currency federalism" are particularly interesting at this point.[21] They envision the possible coexistence between the euro and national currencies guaranteed by fiscal revenues and tied to the common currency. These national currencies could be provided additional tools for monetary policies and could be used to meet national priorities. This shows that even European currencies can be turned into European objects that matter and that the dream of the market unified by the euro can be reimagined.

WHAT EUROPEAN CRISIS? RENARRATING FAILURE

Considering European objects that matter as a basis for a renewed constitutional reflection about Europe is ambitious but ultimately necessary at a time when the relevance of the European project is challenged. There is another international organization in need of public support, the International Panel on Climate Change (IPCC), which has lessons to offer for our reflections on Europe. The IPPC functions as an organization mixing together international diplomacy and technical expertise and redrawing the boundary between science and politics in significant ways.[22] Yet the IPPC is also quick to adopt the discourse of "pure" science when publicly challenged, showing that it fails to defend its approach as an innovative way of producing both science and international diplomacy.[23] The IPPC did so when emails sent by some of its members were leaked. This episode became known as climategate and made the scientific ethos in policy circles a central concern,[24] possibly impacting public trust in scientists.[25] When the answer to this episode described the IPCC in the terms of universal science, it contradicted the actual practices of the international organization and provided ammunition for climate skeptics to all

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too promptly claim that climate knowledge is not universally accepted science. Thus, the case of the IPCC is a forceful reminder of what the disconnection between the dream of purified science and the actual practice of expertise entails. But the IPPC case has a deeper lesson to offer that relates to how human beings are expected to relate to policy making and possibly contribute to it. As Sheila Jasanoff puts it, climate science as mobilized by the IPCC "detaches global fact from local value, projecting a new, totalizing image of the world as it is, without regard for the layered investments that societies have made in worlds as they wish them to be. It therefore destabilizes knowledge at the same time as it seeks to stabilize it."[26] What is then required for climate science and the international institutions in charge of producing it is for Jasanoff "a new climate for society" able to reimagine both the discourse and practice of international climate science so it is articulated with local experience and normative issues about collective priorities and ways of dealing with them. Recent events such as the yellow vest movements in France show that concerns about social justice and economic inequalities are crucial components of climate policy and that there is a risk in divorcing them from the production of expert knowledge.

One can take inspiration from this example to reflect on Europe's constitutional challenges. As with the IPCC, the European institutions struggle to articulate their roles and justify their interventions in explicit terms; tend to revert back in time of crisis to familiar narratives based on universal references, namely science and the market; and often dismiss those who opposed these references as "populist." Brexit might be one of the most telling examples of this dynamic, as the negotiations with the departing United Kingdom has led the European institutions to reaffirm the principles of the Single Market in an unanimous voice. In other cases it is the dream of an objective expertise that is reaffirmed, whether when a new European agency was created in the wake of the mad cow crisis (see chapter 5) or when the European Central Bank was granted new power to control national banks after the financial crisis (see chapter 8). Seeing crises as moments for deepening European integration has become a banal observation in European studies. Yet these examples show that this move is often conducted by reaffirming the dreams of science and the market at the risk of contributing to what caused a crisis in the first place.

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Crises are not always moments of integration, though. The ongoing migrant crisis has seen the rejection of proposals from the EC consisting of allocating quotas of migrants across member states.[27] Instead of a coordinated European answer stemming from a centralized expert vision of who should go where, member states have chosen various answers, and national electoral politics have often resulted in migrants being targeted. Complex data infrastructures meant to make migrants visible through the eyes of the centralized apparatus of control mastered by a new dedicated European agency (called Frontex) can be seen as attempts at constructing an objective description of individual "others." Yet they remain crisscrossed by variations among member states and pervasive technical uncertainties.[28] In chapter 8, I discussed the case of the European reactions to the Fukushima accident. The nuclear stress tests resulted in the elaboration of European teams of experts in charge of assessing nuclear plants; they carefully sidelined issues such as terror attacks and aging and were criticized for the little room they left to civil society groups. But in these cases of (relatively) failed integration in times of crisis, questions are raised about the appropriate European modes of action. During the migrant crisis and after the EC failed to turn the migrant into a technical object in need of scientific assessment from the viewpoint of the centralized European expertise, these questions related to the border as a technical artifact in need of permanent maintenance and evaluation (again through stress tests).[29] In the nuclear case I discussed in chapter 8, the questions were related to nuclear plants and to the identity of those able to assess the plants' safety. The European answers to the migrant crisis and to the Fukushima accident have been unable to reproduce the dreams of the disentangled market and objective science. It is precisely because of this shortcoming and associated uncertainties that the European answers challenge the dreams of science and the market. When understood in these terms, crises can indeed be positive engines for the European project but only if they leave room for rethinking the existing dreams of harmonization—precisely what Brexit and the financial crisis have not led to but that the migrant crisis might still provide. In other words, there is a need to shift from attempting to solve failures of harmonization to recognizing the all too frequent failures of imagining harmonization in new ways.

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FROM DEMOCRATIC DEFICITS TO NEW DEMOCRATIC TERRITORIES

The discourse of crisis is shared by both the analysts and the European actors and extends to the European construction as a whole. "Democratic deficit" is an expression that has become a common trope in European academic and policy circles. The expression is also used more generally in current debates about liberal democracy, a promising ideal based on well-functioning markets and objective science that has been unable to avoid turmoil. Today's reflection about liberal democracy is often framed as an opposition between populism and expertise, and the institutional answer to current crises is phrased in terms of the democratic deficit, as it laments dwindling voter turnout, lack of trust in expert institutions, and the appeal of unscrupulous politicians disregarding democratic and epistemic norms for electoral gains. In Europe this debate maps onto the dreams of harmonization based on objective science and the disentangled market, which are often reaffirmed even as their practical realization seals off policy works from public concerns.

The self-diagnosed democratic deficit has led to a series of initiatives meant to bring the EU "closer to citizens." A "Europe closer to citizens" has become one of the priorities of the European cohesion policy,[30] and variations on this theme are regularly heard in European circles. One can connect it with participatory initiatives meant to include more people in European policy making,[31] punctual events explicitly targeting European citizens such as the "year of citizens" (in 2013), and public engagement initiatives about specific policy domains such as those related to "responsible research and innovation." There are contrasted evaluations of these programs. My objective is not to diminish the value of these initiatives. But I do want to point to the deeper constitutional work needed if one is to take the crucial role of European objects seriously. The initiatives that are meant to democratize the functioning of the EU risk forgetting what it means to democratize that which is at the heart of European interventions, namely European objects. If Europe is indeed a "regulatory state," as Giandomenico Majone would have it,[32] and is so by the democratic will of its member states, one should not consider that the regulation machinery is outside the realm of democratic politics. But doing so

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requires that one connect the making of objects with the concerns of human subjects and reflect on the practical means whereby they have the possibility to voice these concerns. This also means that regulation, less than a technical process entirely determined by the cold rationality of science and the market, becomes a terrain of explicit experimentations and contestations. If seen as explicit political entities, then, European objects might provide the best practical path for reenvisioning regulation in those terms. At a time when numerous collective concerns, from energy systems to food products and from artificial intelligence to chemicals, requires interventions on technical objects, this perspective makes the European regulation a crucial resource for meeting contemporary challenges. The EU might be the only political entity able to derive much of its power from objects and as such an amplified version of the regulatory machineries at the heart of today's liberal democracies. Whether or not the EU will be able to reinvent the terms of its legitimacy with objects that matter for the European publics is a pressing question. But if Europe succeeds in this task, it will then provide a telling demonstration that the opposition between expertise and populism is not the unavoidable fate of liberal democracies.

The answer to the democratic crisis in Europe and, more generally, in Western liberal democracies will require more than eliminating a deficit. The crisis cannot be fully addressed if the answer does not lead to questioning the sources of the crisis in the first place, including the tension between abstract dreams of science and the market and actual practices that do offer possibilities for connecting policy work with what matters to individuals or social groups but are rarely recognized and cultivated as such. In Europe, objects can provide grounds for renewed political practices and ultimately for a reformulation of the long-term perspectives of harmonization. They show that rather than democratic deficits to eliminate, there are new democratic territories to explore.

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NOTES

CHAPTER 1

1. Quotes from Johnson's speech and the European Commission's response can be found in Ben Quinn, "Kipper Rules Boris Johnson Blamed on EU are Actually British, Says Brussels," *The Guardian*, July 18, 2019, https://www.theguardian.com/politics/2019/jul/18/boris-johnson-claims-about-kippers-fishy-brussels-says.

2. Quinn, "Kipper Rules."

3. Duteurtre, *Le retour du général*.

4. Majone, "Europe's 'Democratic Deficit.'"

5. Majone, "The Rise of the Regulatory State in Europe."

6. Lodge, "Regulation, the Regulatory State and European Politics"; Lodge and Wegrich, "The Regulatory State in Crisis"; Thatcher, "Analysing Regulatory Reform in Europe"; Thatcher and Coen, "Reshaping European Regulatory Space."

7. Misa and Schot, "Inventing Europe."

8. Barry, *Political Machines*, 67.

9. This term is used by Joerges, "What Is Left of the European Economic Constitution."

10. See, e.g., Radaelli, "Whither Better Regulation for the Lisbon Agenda?"

11. European scholars and European officials use the term "comitology" to denote a form of collective negotiations conducted within technical committees hosted by the EC in which representatives of member states and interest groups participate.

12. Borraz, "Governing Standards."

13. Boullier, *Toxiques légaux*. I will get back to REACH and the example of chemicals in chapter 6.

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14. This definition implies that European interventions originate from the European institutions, above all the EC. This means that the approach I choose differs from that of the historians of technical infrastructures who have examined integration not as a product of institutional interventions stemming from EU institutions but instead as an outcome of the gradual extension of railways, highways, and telecommunication networks, which started well before the 1957 Treaty of Rome and has progressed in parallel, more often than not in distant relation to the institutional process of European construction. Misa and Schot, "Inventing Europe."

15. Lascoumes and Le Galès, "Understanding Public Policy through Its Instruments," 4.

16. Lezaun, "The Pragmatic Sanction of Materials," 38.

17. See Foucault, *Histoire de la sexualité*; Callon, "Struggles and Negotiations to Define What Is Problematic and What Is Not"; Rabinow, "Midst Anthropology's Problems"; Laurent, *Democratic Experiments*. The role of problematization in the EC's policy-making process has been discussed by Smith, "How the European Commission's Policies Are Made."

18. On sites of problematization, see Laurent, *Democratic Experiments*.

19. For a rich landscape of studies on the Europeanization of domestic policies, see Featherstone and Radaelli, *The Politics of Europeanization*.

20. On expertise in the European institutions, see Robert, "Les groupes d'experts dans le gouvernement de l'Union européenne"; Saurugger, "L'expertise."

21. There is an abundance of literature on lobbying in the European institutions. I come back to it in chapter 5.

22. Bowker and Star, *Sorting Things Out*; Epstein, *Inclusion*.

23. Busch, *Standards*.

24. Bowker and Star, *Sorting Things Out*, 7.

25. Jasanoff, *States of Knowledge*.

26. Laurent, *Democratic Experiments*. This perspective originates from STS but also echoes the critical legal studies of European integration, particularly those that consider that law is not "a ready-made instrument, exterior to and separable from a European 'policy' or 'society' to which it might be applied," but instead has a "constitutive dimension." Vauchez, *L'Union par le droit*, 25 (my translation).

27. For a detailed comment on the notion of competition in European construction, see Davies, *The Limits of Neoliberalism*.

28. "Cohesion Policy," European Commission, https://ec.europa.eu/regional_policy/en/policy/what/glossary/c/cohesion-policy.

29. Barry, "Harmonization and the Art of European Government."

30. Jasanoff and Kim, *Dreamscapes of Modernity*.

31. Although one could think of the notion of "disembeddedness" in this context, I prefer not to use the term. Since Karl Polanyi spoke about the embeddedness of the market in social institutions, the concept has been much discussed in economic

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sociology, often in ways that follow other paths than those traveled by Polanyi. (Beckert, "The Great Transformation of Embeddedness.") Rather than delving into a theoretical debate about the notion of (dis)embeddedness that would bring little to our understanding of European harmonization, I use the term "disentanglement" to point to the dual institutional and material dimension of the extraction of European market objects.

32. Geiger et al., *Concerned Markets*.

33. Ezrahi, *The Descent of Icarus*; Latour, *We Have Never Been Modern*.

34. Favell and Guiraudon, "The Sociology of the European Union"; Rumford, *The European Union*.

35. Fligstein, *Euroclash*.

36. Akrich, "The Description of Technical Objects."

37. For the important body of work about the imagined participant in European science policy, see Felt, "Vers la construction d'un public européen?"; Felt and Wynne, *Taking European Knowledge Seriously*; Jasanoff, *Designs on Nature*. For the construction of European publics through instruments such as the Eurobarometer, see Jasanoff, *Designs on Nature*; Law, "Seeing Like a Survey."

38. These two streams in STS are unfortunately often seen as separated. Michel Callon's work is a notable exception, as his theory of democracy is connected with his analysis of framing and overflowing effects in markets. Callon, "Economic Markets and the Rise of Interactive Agencements."

39. Robert, "Les groupes d'experts"; Saurugger, "L'expertise."

40. Smith, "Why European Commissioners Matter."

41. Smith, "Going beyond the Democratic Deficit."

42. Guiraudon, "The Constitution of a European Immigration Policy Domain"; Favell and Guiraudon, "The Sociology of the European Union"; Kauppi, "Bourdieu's Political Sociology and the Politics of European Integration." For a review of the contribution of French scholars to this approach, see Georgakakis, "The Historical and Political Sociology of the European Union."

43. In some of its formulations, constructivism uses a hypothesis that a critical commentator formulates in those terms: "governmental elites choose specific policies, policy ideas, strategies, and concrete interests because they (or their justifications) are consistent with more general, deeper, collectively held ideas or discourses." Moravcsik, "Constructivism and European Integration," 670. Critics see a significant difficulty in demonstrating the causal ("because") relationship between choices made by governmental elites and "general, deeper, collectively held ideas or discourses." The proponents of the political sociology of Europe based on detailed analysis of social groups and trajectories have been critical of "constructivism" because of its lack of empirical evidence and its "weak theory of agency." See Favell and Guiraudon, "The Sociology of the European Union"; Kauppi, "Bourdieu's Political Sociology."

44. Rumford, *The European Union*.

45. Riesse, "Social Constructivism and European Integration"; Rowell and Mangenot, *Political Sociology of the European Union*.

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46. Saurugger, "Constructivism and Public Policy Approaches in the EU."

47. Scott, *Seeing Like a State*.

48. Radaelli, *The Open Method of Coordination*.

49. Latour, "The 'Pédofil' of Boa Vista."

50. Saurugger, *Theoretical Approaches to European Integration*.

51. Vauchez, *L'Union par le droit*.

52. It would be a daunting task to map the lengthy debates about which theory is the most appropriate for understanding European construction. This mapping exercise could lead us to sophisticated discussions about what a theory is and what it means to say that it explains something. For a detailed review, see Saurruger, *Theoretical Approaches*.

CHAPTER 2

1. "EU Will 'Never, Never, Never' Compromise on Single Market—Barnier," *Reuters*, January 27, 2020, https://www.reuters.com/article/uk-britain-eu-nireland-barnier-idUKKBN1ZQ272.

2. "The European Single Market," European Commission, https://ec.europa.eu/growth/single-market_en.

3. Ibid.

4. Fligstein and Mara-Drita, "How to Make a Market," 26.

5. Barry, *Political Machines*, 68. Barry provides a discussion of technological zones in chap. 1.

6. Callon, "What Does It Mean to Say That Economics Is Performative?," 44.

7. Foucault, *The Birth of Biopolitics*, 121. Foucault introduces the notion of "governmentality" to analyze the interventions that are necessary to produce the market.

8. Ibid.; Davies, *The Limits of Neoliberalism*.

9. Joerges, "What Is Left of the European Economic Constitution."

10. Barry, *Political Machines*, 40.

11. See Laurent and Mallard, *Labelling the Economy*.

12. Interview, Paris, June 2013.

13. I have anonymized the name.

14. Case C-100/13 *European Commission v Federal Republic of Germany*.

15. Limiting the interpretation to an opposition between the EC's market ideology and member states' fight for political sovereignty risks overlooking the fact that member states do not present a unified front opposing the EC but instead adopt various positions. The construction product area is not particular in that regard, as some member states, including the United Kingdom, opposed the shift from voluntary to mandatory CE marking, supported by France and Germany, when harmonized norms existed.

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16. Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011 Laying Down Harmonized Conditions for the Marketing of Construction Products and Repealing Council Directive 89/106/EEC, Annex I.

17. When no harmonized European norm exists (e.g., when a product is innovative), producers may ask for a European Assessment Document at the European Organisation for Technical Assessment, after which their products can receive the CE mark. Unlike the first route (used when a harmonized European norm exists), the second one is voluntary.

18. I have anonymized the name.

19. This organization is the European Organisation for Technical Assessment.

20. Interview, Paris, July 2016.

21. I have anonymized the name.

22. Callon, Méadel, and Rabeharisoa, "The Economy of Qualities."

23. European Commission, *Vademecum on European Standardization in Support of Union Legislation and Policies, Part I,* Brussels, SWD(2015) 205.

24. Ibid., 2–3.

25. Ibid., 9.

26. Majone, "The Rise of the Regulatory State." The New Approach seems to provide a more general framework for making sense of the two-step process identified with construction products. The construction sector holds a particular relationship with the New Approach, though, that is regularly described as a "fake instance of the New Approach." Compared to the other sectors where CE marking is used (e.g., toys and pressure equipment), the building sector is indeed particular. While construction products receive CE marks, buildings are the entities being regulated in the European regulation. Thus, the "basic requirements" mentioned in the CPR all relate to the building itself, and mandates therefore need to define the expectations of the harmonized norms accordingly. As such, the Blue Guide "on the implementation of EU product rules" (i.e., the New Approach) mentions construction products among the elements that it does not attempt to cover. European Commission, *Commission Notice of 5/4/2016: The "Blue Guide" on the Implementation of EU Product Rules 2016*, Brussels, COM(2016) 1958, 15. This means that the delegation of policy objectives to private actors involved in technical standardization is even more complex than in other domains of the New Approach.

27. European Commission, *Vademecum*, 9 (my emphasis).

28. Jasanoff, "Contested Boundaries in Policy-Relevant Science."

29. Latour, *We Have Never Been Modern.*

30. Jasanoff, "Contested Boundaries"; Jasanoff, *The Fifth Branch*.

31. Joerges, "Free Trade with Hazardous Products?," 5.

32. The provision about "classes and thresholds" was an evolution between the Construction Product Directive and the CPR. A CEN officer told me that this was "the main substantial difference between CPD and CPR."

33. Article 2(7) of Regulation (EU) No 305/2011.

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34. Phone interview, CEN, May 2016.

35. In 2016, it had never been undertaken.

36. European Institute of Public Administration, *Delegated and Implemented Acts: The New Comitology*, 2013, EIPA Essential Guides, 12.

37. Ibid.

38. Interview, Paris, June 2016.

39. Explanatory Memorandum for Commission Delegated Regulation of 24/2/2017 on the Classification of Horizontal Settlement and Short Term Water Absorption Performance for In-Situ Formed Loose Fill Cellulose (LFCI) Thermal Insulation Products Under EN 15101-1 Pursuant to Regulation (EU) No 305/2011 of the European Parliament and of the Council (my emphasis).

40. Interview, Champs/Marne, May 2016.

41. Phone interview, CEN, May 2016.

42. According to the negotiator of the EC for the CPR, the consequences of the delegated act approach was not even understood by the member states when it was introduced. In his own words, "member states now hate delegated acts . . . but here we managed to introduce them without their noticing." Interview, Brussels, January 2016.

43. Construction Product Europe, *Implementation of the Construction Product Regulation: Manufacturers' Report*, 20–21.

44. Ibid.

45. Fligstein and Mara-Drita, "How to Make a Market."

46. During interviews, many of them contrasted this perspective with that of the EC.

47. Geiger et al., *Concerned Markets*.

48. Callon et al., "The Economy of Qualities."

49. One could argue that this is in the spirit of the New Approach and of standardization in general. Borraz, "Governing Standards"; Cochoy, "De l' 'AFNOR' à 'NF,' ou la progressive marchandisation de la normalisation industrielle."

50. Interviews, Brussels, January 2016. Symmetrically, representatives of professional organizations and national public administrations would repeatedly state that the sole objective of the EC was to eliminate trade barriers.

CHAPTER 3

1. A turning point was the 1992 Regulation (EEC) No. 2081/92 "on the protection of geographical indications and designations of origin for agricultural products and foodstuffs." In addition, Regulation (EEC) No. 2082/92 protects traditional recipes. Wines are covered by yet another legal text (Regulation 753/2002).

2. Cases C-289/96, C-293/96, and C-299/96. For a detailed account, see Blackeney, *The Protection of Geographical Indications*.

3. Callon, Méadel, and Rabeharisoa, "The Economy of Qualities."

4. Josling, "The War on Terroir," 343.

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5. "European Commission Registers Χαλλούμι/Halloumi/Hellim as a Protected Designation of Origin (PDO)," European Commission press release, April 12, 2021, https://ec.europa.eu/commission/presscorner/detail/en/IP_21_1623.

6. Welz, "Contested Origins."

7. Sam Masters, "Cyprus Great Halloumi Debate: The Source of the Country's Latest North-South Divide Is . . . Cheese," *The Independent*, May 13, 2015, https://www.independent.co.uk/life-style/food-and-drink/news/cypruss-great-halloumi-debate-the-source-of-the-countrys-latest-north-south-divide-is-cheese-10247910.html.

8. DeSoucey, "Gastronationalism."

9. Parrott, Wilson, and Murdoch. "Spatializing Quality."

10. DeSoucey, *Contested Tastes*; Téchoueyres, "Development, Terroir and Welfare."

11. Allaire and Sylvander, "Les dispositifs français et européens de protection de la qualité et de l'origine dans le contexte de l'OMC."

12. This characterization of the cheeses against which feta competes was used at the European Court of Justice. Blakeney, *The Protection of Geographical Indications*, 92–95.

13. Regulation (EEC) No. 2081/92, Recital 2.

14. For the most recent version of the Cork declaration, see "A Better Life in Rural Areas," https://enrd.ec.europa.eu/sites/default/files/cork-declaration_en.pdf.

15. See Rumford, *The European Union*, 79.

16. Libery and Kneafsey, "Product and Place."

17. Tregear et al., "Regional Foods and Rural Development."

18. Pacciani et al., "The Role of Typical Products in Fostering Rural Development and the Effects of Regulation (EEC) 2081/92."

19. For example, in directive 90/239/EEC tar yield had to be limited to twelve milligrams per cigarette by December 31, 1997.

20. Directive 2001/37/EC of the European Parliament and of the Council of 5 June 2001 on the Approximation of the Laws, Regulations and Administrative provisions of the Member States concerning the Manufacture, Presentation and Sale of Tobacco Products, Recital 27.

21. Weiler, "The Transformation of Europe," 2463.

22. Adamini, Versluis, and Maarse, "European Policymaking on the Tobacco Advertising Ban," 68.

23. For instance, Recital 4 of the 2014 tobacco directive states that "a high level of protection in terms of health, safety, environmental protection and consumer protection should be taken as a basis, regard being had, in particular, to any new developments based on scientific facts; in view of the particularly harmful effects of tobacco, health protection should be given priority in this context."

24. Neil Corlett, "Parliament Agenda: ALDE Priorities for the Week of 23 Sept. 2013," European Views, April 15, 2018, www.vieuws.eu/previeuws/parliament-agenda-alde-priorities-for-the-week-of-23-sept-2013/, quoted in Bertollini et al., "Tobacco Control in Europe," 153.

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25. Oreskes and Conway, *Merchants of Doubt*; Proctor, *Golden Holocaust*.

26. Costa et al., "Quantifying the Influence of the Tobacco Industry on EU Governance."

27. Bertollini et al., "Tobacco Control in Europe."

28. Recital 3 of the 2001 tobacco directive.

29. At the time, this was stipulated in Article 100a.

30. Jasanoff, "Constitutional Moments in Governing Science and Technology."

31. The numbering of the corresponding article evolved with the successive treaties. Article 100s later became Article 95 TEC and eventually Article 114 of the Treaty of the Functioning of the European Union (TFEU).

32. Directive 98/43 relating to the advertising and sponsorship of tobacco products.

33. Case C-376/98 *Germany v Parliament and Council* (Tobacco Advertising).

34. Kumm, "Constitutionalising Subsidiarity in Integrated Markets," 503–504.

35. Tridimas and Tridimas, "The European Court of Justice and the Annulment of the Tobacco Advertisement Directive," 180.

36. The directives used the articles of the treaties related to the internal market (Article 95 EC, later 114 TFEU).

37. Judgment of the Court in Case C-491/01 *The Queen v Secretary of State for Health*, ex parte: British American Tobacco (Investments) Ltd and Imperial Tobacco Ltd [2002] ECR I-11453, para. 62; Case C-210/03 Swedish Match, supra note 68, para. 31.

38. The European Court of Justice referred to Article 95 related to harmonization of the internal market in those terms in its 2001 decision: "The argument that the Directive ought to have referred to scientific facts to justify the new provisions it incorporates in relation to the Community measures previously adopted cannot be accepted. Paragraph 80 above clearly shows that Article 95 EC does not require developments in scientific knowledge to be invoked if the Community legislature is to be able to adopt measures on the basis of that provision." Case 491/01, para. 170.

39. "The New EU Directive on Tobacco Products Is Valid," Press Release No. 48/16, Court of Justice of the European Union, Luxembourg, May 4, 2016.

40. The fact that Tobacco Advertising was not followed by a growing annulment of measures of harmonization can be interpreted as an illustration of a dynamic well known to legal scholars of European integration. As treaties do not provide enough details, the European Court of Justice needs to interpret them in determining the scope of European institutions' interventions, and the EC then adapts to these rulings. Weatherill, "The Limits of Legislative Harmonization Ten Years after Tobacco Advertising." In fact, Tobacco Advertising served as a useful jurisprudence for subsequent European texts, and the subsequent European texts on tobacco focused on practices that could impact cross-border economic exchanges such as advertising by means that could circulate across borders (e.g., media and the Internet). Adamini, "European Policymaking on the Tobacco Advertising Ban," 70. See also Hervey and McHale, *Health Law and the European Union*.

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41. Liu, "Harmonizing the Internal Market, or Public Health?," 41.

42. Crosby, "The New Tobacco Control Directive."

43. Kumm, "Constitutionalism Subsidiarity in Integrated Markets"; Tridimas, "Judicial Review and the Community Judicature"; Weatherill, "The Limits of Legislative Harmonization Ten Years after Tobacco Advertising."

44. Horsley, "Subsidiarity and the European Court of Justice?"

45. Adamini, "European Policymaking on the Tobacco Advertising Ban."

46. Nicola and Marchetti, "Constitutionalizing Tobacco."

47. For instance, the 2014 directive banned menthol cigarettes. This was challenged by Poland, which lost the case at the European Court of Justice. The court again used arguments related to market harmonization to ground its decision (Judgement C-358/14).

48. See, e.g., Bates et al. "The Future of Tobacco Product Regulation and Labelling in Europe"; Bialous and Yach, "Whose Standard Is It, Anyway?"

49. Peeters et al., "The Revision of the 2014 European Tobacco Products Directive."

50. There is, however, another legal arena where scientific arguments are explicitly considered, and it was active in the case of tobacco. The European regulatory texts about tobacco were challenged at the World Trade Organization (WTO) on scientific grounds. Some countries argued that the claim that the prohibition of products with characteristic flavors, on the grounds that it would "actually contribute to lower rates of smoking initiation by young people," lacked scientific basis, while others contested the evidence that these products and other additives were harmful. Gruszczynski, "The New Tobacco Products Directive and WTO Law." The labeling requirements of the 2014 tobacco directive were similarly contested, as some member countries questioned the evidence of a causal link between health warnings and customer behaviors (about which "direct causality" was said to require "material and quantifiable" evidence), and between packaging requirements (e.g., at least twenty cigarettes per packet) and the protection of human health. The distinction between cigarettes and other kinds of tobacco products as well as the introduction of a mandatory traceability system (instead of existing voluntary ones) were also contested on scientific grounds. The challenges at the WTO have never threatened the European regulation of tobacco. Here the case for existing scientific evidence is strong, and the European parties won the case. Gruszczynski, "The New Tobacco Products Directive." We will see in chapter 5 that other European regulations were challenged at the WTO in ways that were much more problematic and forced the European institutions to make their scientific argumentation explicit.

51. Regulation (EU) No 236/2012 of the European Parliament and of the Council of 14 March 2012 on Short Selling and Certain Aspects of Credit Default Swaps (OJ 2012 L 86, p. 1)

52. Article 28(2)(a).

53. At that time, it was Article 114 of the treaty.

54. Marjosola, "Bridging the Constitutional Gap in EU Executive Rule-Making," 2.

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55. Judgment of the Court of 22 January 2014, *United Kingdom of Great Britain and Northern Ireland v European Parliament and Council of the European Union*, C-270/12.

56. The judgment made it explicit in the following section: "*the harmonisation of the rules governing such transactions is intended to prevent the creation of obstacles to the proper functioning of the internal market and the continuing application of divergent measures by Member States*" (para. 114). The European Court of Justice added that the ESMA's role was to act when national authorities alone could not resolve situations threatening the integrity of financial markets or the stability of the financial system (para. 115).

57. C-270/12, para. 103.

58. Kálmán, "In the Name of the Integration."

59. Sven Giegold and René Repasi, "Assessment of the Judgment of the European Court of Justice in Case 270/12, United Kingdom v. Council and European Parliament: Impact of This Judgment on the Proposal of the SRM Regulation," The Greens, January 23, 2014.

60. As set out in Article 114 TFEU.

61. Dorn, *Democracy and Diversity in Financial Market Regulation*, 95.

62. Opinion of Advocate General Jääskinen, 2013, para. 53, quoted in Dorn, *Democracy and Diversity*, 94. The advocate general proposed that a better legal ground would have been the so-called flexibility clause of the Treaty of Lisbon (Article 352), which allows the EU to take measures when there is no specific legal basis in the treaty, subject to a unanimous vote in the European Council, assent of the European Parliament, and prior notification of national parliaments, a condition for "enhanced democratic input," in the words of the advocate general, and to be situated in the debate about the role of national parliaments. Dorn, *Democracy and Diversity*, 95.

63. This is an excerpt from a report written by the General Council of the Bar of England and Wales in 2016, *Response to Internal Market Synoptic Review: Article 114 TFEU—An Expanding Legal Basis?*

64. Callon et al., "The Economy of Qualities"; Callon, *L'emprise des marchés*.

65. Geiger et al., *Concerned Markets*.

66. Laurence and Wynne, "Transporting Waste in the European Community"; Fischer, "The Development and Achievements of EU Waste Policy."

67. Armstrong, Bulmer, and Bulmer, *The Governance of the Single European Market*, 216.

68. Armstrong, Bulmer, and Bulmer, *The Governance of the Single European Market*.

69. Kama, "Circling the Economy."

70. The extension of majority voting at the European Council in the 1990s should have made cases such as tobacco less numerous, as in a growing number of instances acting for the sake of market harmonization does not afford a clear advantage in terms of avoiding conditions of unanimity at the council. However, the market harmonization argument still has an important role in European environmental policy. Holzinger, "Environmental Policy in the Joint-Decision Trap?" The successive amendments

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of voting rules at the European Council have been the topic of a specific literature in political science that has examined the complex power plays implied by the extension of majority voting and the subtle rules defining what a majority at the council is. See, e.g., Hosli, "Coalitions and Power"; Leech, "Designing the Voting System for the Council of the European Union."

CHAPTER 4

1. "Technology and Democracy: Quo Vadis?," Chios, Greece, October 2–3, 2014, Tensions of Europe workshop co-organized with the National and Kapodistrian University of Athens.

2. Solorio and Jörgens, *A Guide to EU Renewable Energy Policy*; Strunz et al., "Policy Convergence as a Multifaceted Concept."

3. Miller, Iles, and Jones, "The Social Dimensions of Energy Transitions."

4. Misa and Schott, "Inventing Europe."

5. About Euratom, see Barry and Walters, "From EURATOM to 'Complex Systems.'"

6. European Commission, *First Guidelines for a Community Energy Policy: Memorandum Presented by the Commission to the Council*, COM (68) 1040 Final, Brussels: European Commission, December 18, 1968, 5, quoted in Maltby, "European Union Energy Policy Integration."

7. Maltby, "European Union Energy Policy Integration," 437.

8. Council of the European Union, The Single European Act, February 17, 1986, Article 8a.

9. Padgett, "The Single European Energy Market."

10. "Market Legislation," European Commission, https://ec.europa.eu/energy/en/topics/markets-and-consumers/market-legislation.

11. Ibid.

12. Andersen and Sitter, "The European Union Gas Market," 11.

13. Finon and Rocques, "Financing Arrangements and Industrial Organisations for New Nuclear Build in Electricity Markets"; Marty, "L'Europe de l'énergie."

14. Marty, "L'Europe de l'énergie," 10.

15. Bouzarovski, Bradshaw, and Wochnik, "Making Territory through Infrastructure."

16. Kama, "On the Borders of the Market."

17. On the France-Spain high-voltage power line, see Ciupuliga and Cuppen, "The Role of Dialogue in Fostering Acceptance of Transmission Lines."

18. Fligstein, *Euroclash*, 111.

19. This does not mean that telecommunications are an illustration of a supranational approach to European integration and that energy is by contrast characteristic of the power of intergovernmental negotiation. In the case of telecommunication, member states' policy choices and the European regulation were aligned. Schmidt, "Sterile Debates and Dubious Generalisations."

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20. Andersen and Sitter, "The European Union Gas Market."

21. Jamasb and Pollitt, "Electricity Market Reform in the European Union," 12.

22. *DG Competition Report on Energy Sector Inquiry*, Brussels, SEC(2006) 1724, European Commission, January 10, 2007, http://ec.europa.eu/competition/sectors/energy/2005_inquiry/full_report_part1.pdf.

23. Ibid., 7.

24. Ibid. In turn, this spurred other assessments by external consultants, who concurred in considering that "competition in wholesale electricity generation is not functioning properly." *Structure and Performance of Six European Wholesale Electricity Markets in 2003, 2004 and 2005*, European Commission, February 26, 2007, http://ec.europa.eu/competition/sectors/energy/2005_inquiry/electricity_final_execsum.pdf.

25. *DG Competition Report on Energy Sector Inquiry*, 17.

26. Ibid.

27. The French network operator has been playing a key role in this process.

28. These considerations are based on an ethnographic study conducted by Jérémie Benhamou. See Benhamou, "The European Ordoliberal Integration Efforts through the Operation of Common Technical Systems."

29. These words are regularly used by the engineers and economists in charge of implementing these models. Ibid.

30. Porter, *Trust in Numbers*.

31. European Commission, 2014, Single Market for Gas & Electricity, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions, Progress towards Completing the Internal Energy Market COM(2014) 634, quoted in Bouzarovski et al., "Making Territory through Infrastructure."

32. Article 194, Lisbon Treaty.

33. European Commission, *Communication from the Commission: Energy for the Future; Renewable Sources of Energy*, Green Paper for a community strategy, Brussels, COM (96) 576, 1996.

34. Tagliapietra, "Towards a European Energy Union."

35. Marty, "L'Europe de l'énergie"

36. MacKenzie, "Making Things the Same."

37. Aykut, "Gouverner le climat, construire l'Europe." This was restated by a former energy adviser to then president of the EC Barroso during an interview on October 9, 2017, in Brussels.

38. Lohmann, "Uncertainty Markets and Carbon Markets."

39. See a discussion in Doganova and Laurent, "Carving a Domain for the Market."

40. Liliana Doganova and I repeatedly heard these considerations in meetings at the EC about the ETS and in interviews with officials at the EC in charge of the ETS. We comment on this point in Doganova and Laurent, "Carving a Domain for the Market."

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41. Ibid.

42. This section is mostly based on fieldwork I conducted in 2012–2013, which is presented in more detail in Laurent, "The Politics of European Agencements."

43. In the 2009 Renewable Energy Directive (Directive 2009/28/EC of the European Parliament and of the European Council of April 23, 2009, on the promotion of the use of energy from renewable sources). I will get back to these criteria and the fierce debates they cause in chapter 7.

44. European Commission, *Commission Staff Working Document Impact Assessment, Accompanying Document to the Report from the Commission to the Council and the European Parliament on Sustainability Requirements for the Use of Solid and Gaseous Biomass Sources in Electricity, Heating and Cooling*, COM(2010)11 final, SEC(2010) 66, 2010.

45. European Biodiesel Board, *Adoption of the Renewable Energy Directive*, 2008, EBB official position and voting recommendations on the amendment table in the ITRE Committee, Brussels, September 2008.

46. The EC commissioned evaluations of the potential value of book and claim approaches, which have constantly been judged to be less effective and more prone to fraud. Ecofys, *Analysis of the Operation of the Mass Balance System and Alternatives*, report produced for the EC, 2012. The Roundtable on Sustainable Palm Oil recently announced that it no longer endorsed GreenPalm, a system for trading certificates. "Big Changes Afoot for the Book and Claim Model: What You Need to Know and Do," Roundtable on Sustainable Palm Oil, August 30, 2016, https://rspo.org/news-and-events/news/big-changes-afoot-for-the-book-and-claim-model-what-you-need-to-know-and-do.

47. Laurent, "The Politics of European Agencements."

48. European Commission, *Commission Staff Working Document Impact Assessment, Accompanying Document to the Report from the Commission to the Council and the European Parliament on Sustainability Requirements for the Use of Solid and Gaseous Biomass Sources in Electricity, Heating and Cooling*, COM(2010)11 final, SEC(2010) 66, 2010, 36.

49. Laurent, "The Politics of European Agencements."

50. *Selecting a Biomass Certification System: A Benchmark on Level of Assurance, Costs and Benefits*, NL Agency, Ministry of Economic Affairs, Agriculture and Innovation, The Netherlands, 2012, https://jvdconsultancy.com/wp-content/uploads/2019/11/Selecting-a-biomass-certific-ation-system-%e2%80%93-a-benchmark-on-level-of-assurance-costs-and-benefits-March-2012-.pdf. For a critical account, see Ponte, "'Roundtabling' Sustainability."

51. Yet another source of variation relates to waste and residues. The European regulation states that when a company buys raw material or biofuels made of waste and residues, it can double the amount of sustainable products it inputs into its accounting sheet. Furthermore, categorizing products as waste and residues allows the economic operator not to verify the biodiversity condition and not to take the corresponding greenhouse gas emissions into account. This is meant to encourage the transition to so-called second-generation biofuels, possibly made from agricultural residues and in any case required not to compete with food production. Yet what counts as waste

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and residue for one industrial operator might be the primary material for another. Accordingly, the list of waste and residues may vary from one sustainability scheme to the next and from one member state to the next and may evolve according to negotiations between national public administrations and industries.

52. Interview, Paris, September 2012.

53. This section is based on Laurent and Petit, "A European Market for Green Certificates?"

54. "Make 'Green Electricity' Markets Work for Consumers and Energy Transition," Joint statement of consumer organizations, environmental nongovernmental organizations, and renewable energy associations, Wind Europe, March 9, 2017, https://windeurope.org/wp-content/uploads/files/policy/position-papers/Joint-Statement-on-Green-Electricity.pdf. The report that this press release followed is Bureau Européen des Unions de Consommateurs, *Current Practices in Consumer-Driven Renewable Electricity Markets*, 2016.

55. Interview, Brussels, December 19, 2016.

56. The EC took inspiration from existing mechanisms. A private market of green certificates had been introduced in the late 1990s, and some member states had been using cap and trade mechanisms to encourage the development of sustainable energy. For instance, the Netherlands had introduced the Groenlabelsystem that associated voluntary target levels of sustainable electricity production with a market for green labels. Komor, *Renewable Energy Policy*. This system was described to Brieuc Petit and me when we interviewed a former employee of the Dutch professional organization of electricity producers.

57. Cartel, Boxenbaum, and Aggeri, "Just for Fun!"

58. In May 2001 the European Renewable Electricity Certificate Trading Project (RECerT) gathered almost 150 private and public organizations from over fifteen countries and simulated a market of green certificates, thus compressing ten years of trading activity into sixteen hours of market operation.

59. Lauber and Schenner, "The Struggle over Support Schemes for Renewable Electricity in the European Union."

60. Interview, Directorate-General for Energy, European Commission, December 16, 2016. See Lauber, "The Politics of European Union Policy on Support Schemes for Electricity from Renewable Energy Sources."

61. European Commission, *Proposal for a Directive of the European Parliament and of the Council on the Promotion of Electricity from Renewable Energy Sources in the Internal Electricity Market*, *Official Journal of the European Communities*, C 311 E/320–327, 2000.

62. Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the Promotion of Electricity Produced from Renewable Energy Sources in the Internal Electricity Market.

63. Guarantees of origin were meant to "increase transparency for the consumer's choice between electricity produced from non-renewable and electricity produced from renewable energy sources." Directive 2001/77/EC of the European Parliament

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and of the Council of 27 September 2001 on the Promotion of Electricity Produced from Renewable Energy Sources in the Internal Electricity Market.

64. Green certificates were introduced in Italy (1999), Belgium (2002), and the United Kingdom (2002), followed by Sweden (2003), Poland (2005), and Romania (2005).

65. Communication from the EC, "Renewable Energy Road Map: Renewable Energies in the 21st Century; Building a More Sustainable Future," Brussels, COM (2006) 848.

66. The market for guarantees of origin was expected to "result in price convergence, regulatory reforms and eventual harmonisation of support schemes." European Commission, staff working document *accompanying the* Package of Implementation measures for the EU's objectives on climate change and renewable energy for 2020, COM(2008) 16–19, 2008, 106.

67. See Toke, "The EU Renewables Directive"; Nilsson, Nilsson, and Ericsson, "The Rise and Fall of GO Trading in European Renewable Energy Policy." To accommodate the opponents of its propositions, the EC included in its proposal an opt-out clause that allowed member states to limit import and/or export of guarantees of origin that hindered their ability to reach their target. The legal weakness of the opt-out clause was the uncertainty as to whether limitations to trade would comply with internal market rules once the open market for guarantees of origin was created.

68. The final text adopted on April 23, 2009, replaced the envisioned market of guarantees of origin by "optional cooperation mechanisms" for member states to count renewable energy produced abroad and to calculate their national share of renewable energy. Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources.

69. Brieuc Petit and I interviewed some of the actors who had been at the origin of the private system for the exchange of green certificates. We presented a more detailed analysis of the history of the green certificates in a recent chapter. See Laurent and Petit, "A European Market for Green Certificates?"

70. Interview with secretary-general of the Association of Issuing Bodies, December 20, 2016. This person used to be a British industrialist and early proponent of green certificates. He explained that private suppliers of electricity realized they could virtually export a set amount of hydropower from Scotland to northern England and import the same quantity of coal-fired electricity from England into Scotland for the purpose of avoiding England's fossil fuel levy on carbon emissions. In doing so and without any physical movement of electricity, they could value the greenness of renewable electricity production and achieve substantial profits. He mentioned during the interview the expected profits: "at least six figures and possibly seven."

71. Although EC law prohibits "quantitative restrictions on imports and all measures having equivalent effect" (Article 28 EC), the reservation of national support schemes to nationally based companies had been agreed by the European Court of Justice in the early 2000s. It was later acknowledged by the European legislator, who indicated in the renewable energy directive of 2009 that "Member States shall have the right to decide . . . to which extent they support energy from renewable sources which is produced in a different Member State." Directive 2009/28/EC.

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72. Opinion of Advocate General Bot, delivered on May 8, 2013, Joined Cases C-204/12 to C-208/12 *Essent Belgium NV v. Vlaamse Reguleringsinstantie voor de Elektriciteits- en Gasmarkt*; Opinion of Advocate General Bot, delivered on January 28, 2014, Case C-573/12, *Ålands Vindkraft AB v. Energimyndigheten*.

73. Karel Beckman, "Exclusive: The End Is Near—For National Renewable Energy Subsidy Schemes in the EU," Energy Post, February 26, 2014, https://energypost.eu/end-near-national-renewable-energy-subsidy-schemes-eu/.

74. Geiger et al., *Concerned Markets*.

75. See Bruno, Jacquot, and Mandin, "Europeanization through Its Instrumentation."

CHAPTER 5

1. Although it differs very slightly across countries because the backside of the coins represents national symbols.

2. Vauchez, *Democratizing Europe*. See also Hall and Franzese, "Mixed Signals"; McNamara, "Rational Fictions."

3. Nagel, *The View from Nowhere*, 5.

4. Daston and Galison, *Objectivity*.

5. Jasanoff, *The Fifth Branch*; Hilgartner, *Science on Stage*.

6. Vauchez, *Democratizing Europe*, 30.

7. Henriette Jacobsen and Jeremy Fleming, "Tsipras Declares Death of Troika, Agrees to Further Talks," Euractiv, February 13, 2015, https://www.euractiv.com/section/euro-finance/news/tsipras-declares-death-of-troika-agrees-to-further-talks/.

8. Cambrosio et al., "Regulatory Objectivity and the Generation and Management of Evidence in Medicine."

9. Jasanoff, *Designs on Nature*.

10. Ibid.

11. Lezaun, "Creating a New Object of Government," 500.

12. Communication from the Commission to the Council and the European Parliament—Report on the Implementation of National Measures on the Coexistence of Genetically Modified Crops with Conventional and Organic Farming, {SEC(2006) 313}/* COM/2006/0104 final, 2006.

13. Lezaun, "Creating a New Object of Government."

14. This has been a topic of concern for NGOs. See Lezaun, "Creating a New Object of Government."

15. Lezaun and Schneider, "Endless Qualifications, Restless Consumption," 373.

16. Ibid.

17. Lezaun, "Bees, Beekeepers, and Bureaucrats."

18. The European regulatory production about coexistence comprises three directives (2001/18/CE, 2002/53/CE, and 2015/412), three regulations (1829/2003,

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1830/2003, and 834/2007), five communications (COM[2004]415, COM[2006]104, COM[2009]153, COM[2011]204, and COM[2015]176), one decision "establishing a network group" for information exchange about coexistence (2005/463/CE), and one recommendation (2010/C200/01). The European Parliament has published its own resolution on the topic.

19. Levidow and Boschert, "Coexistence or Contradiction?"

20. Dobbs, "Excluding Coexistence of GMOs?"

21. Dobbs, "Attaining Subsidiarity-Based Multilevel Governance of Genetically Modified Cultivation?"

22. This narrative is often supported by public opinion data originating from the Eurobarometer. Laurent, "Perfecting European Democracy."

23. European Commission, "Options for Strengthening Responsible Research and Innovation: Report of the Expert Group on the State of Art in Europe on Responsible Research and Innovation," KI-NA-25-766-EN-C, 2013.

24. Quoted in Wickson and Wynne, "The Anglerfish Deception."

25. See Levidow and Carr, "Europeanising Advisory Expertise." For similar tension at the European Environmental Agency, see Waterton and Wynne, "Knowledge and Political Order in the European Environment Agency."

26. One can interpret in those terms the fact that scientific argumentation is required by the EC in other examples of safeguard clauses for food products. See Vos, "EU Food Safety Regulation in the Aftermath of the BSE Crisis," 236.

27. Wickson and Wynne, "The Anglerfish Deception."

28. See Demortain, "Standards of Scientific Advice"; Vos, "The Rise of Committees." The 1997 Amsterdam Treaty asked the EC to "take as a base a high level of protection, taking account in particular of any new development based on scientific facts" in domains related to "health, safety, environmental protection and consumer protection" (Article 95[3]).

29. Dehousse, "Regulation by Networks in the European Community."

30. Radaelli, "The Public Policy of the European Union"; Robert, "Les groupes d'experts dans le gouvernement de l'Union européenne."

31. Radaelli, *Technocracy in the European Union*.

32. Saurugger, "L'expertise."

33. See, for instance, among prolific literature Coen, "The European Business Interest and the Nation State"; Coen and Richardson, *Lobbying the European Union*; Laurens, *Lobbyists and Bureaucrats in Brussels*.

34. Orzack, Kaitin, and Lasagna, "Pharmaceutical Regulation in the European Community."

35. See "The Centralised Procedure," European Medicines Agency, February 1–2, 2010, http://www.ema.europa.eu/docs/en_GB/document_library/Presentation/2010/03/WC500074885.pdf.

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36. Groenleer, "The Actual Practice of Agency Autonomy"; Orzack et al., "Pharmaceutical Regulation in the European Community."

37. Permanand and Mossialos, "Constitutional Asymmetry and Pharmaceutical Policy-Making in the European Union."

38. Jasanoff, "Epistemic Subsidiarity"; Boullier, *Toxiques légaux*.

39. Gardner, "The European Agency for the Evaluation of Medicines and European Regulation of Pharmaceuticals"; Gehring and Krapohl, "Supranational Regulatory Agencies between Independence and Control."

40. Majone, "The New European Agencies."

41. See, e.g., Dehousse, "Delegation of Powers in the European Union."

42. See, e.g., Borrás, Koutalakis, and Wendler, "European Agencies and Input Legitimacy"; Chiti, "Emergence of a Community Administration"; Levi-Faur, "Regulatory Networks and Regulatory Agencification."

43. See, e.g., Demortain, "European Agencies."

44. Parr, "Why It Made Sense to Scrap the Post of Chief Scientific Adviser."

45. Doug Parr, chief scientist of Greenpeace, challenged this interpretation. Parr, "Why It Made Sense to Scrap the Post of Chief Scientific Adviser."

46. See a tribune written by science policy scholar James Wilsdon, "Juncker Axes Europe's Chief Scientific Adviser," *The Guardian*, November 13, 2014, https://www.theguardian.com/science/political-science/2014/nov/13/juncker-axes-europes-chief-scientific-adviser. The debate about the position of chief scientific adviser has been reported in Wilsdon, Doubleday, and Stirling, *Future Directions for Scientific Advice in Europe*.

47. This is particularly visible in the case of the EMA. See Permanand and Mossialos, "Constitutional Asymmetry and Pharmaceutical Policy-Making in the European Union." Two opposite movements have been involved here, as the EMA tried not to exclude experts because of distant industry ties (see "Medicines Regulator Amends Conflict of Interest Rules to Ensure Suitability of Experts," *Pharmaceutical Journal*, November 25, 2014, https://www.pharmaceutical-journal.com/news-and-analysis/medicines-regulator-amends-conflict-of-interest-rules-to-ensure-suitability-of-experts/20067248.article) while being criticized for providing confidential yet profitable "advice" to companies to help them produce development plans (see "The EMA's Scientific Advice to Pharma Companies Is a Conflict of Interest, Says Industry Coalitions," The Pharma Letter, July 15, 2014, https://www.thepharmaletter.com/article/the-ema-s-scientific-advice-to-pharma-companies-undermines-is-a-conflict-of-interest-says-industry-coalition).

48. The discussions within the EC about the need for a food safety agency had been ongoing since the mid-1980s. Demortain, "Standards of Scientific Advice."

49. See Vos, "EU Food Safety Regulation in the Aftermath of the BSE Crisis." Before that, the European regulation of foodstuffs was only partially harmonized through mutual recognition and comitology systems, and no centralized body existed. Krapohl, "Thalidomide, BSE and the Single Market."

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50. For a discussion about the United Kingdom, see Krapohl, "Thalidomide, BSE and the Single Market." The United Kingdom also contested the intervention of the EC at the European Court of Justice.

51. See Levidow and Carr, "Europeanizing Advisory Expertise." The composition of the board, however, became strategic for member states. Demortain, "Standards of Scientific Advice."

52. Demortain, "Standards of Scientific Advice."

53. Dreyer and Renn, "EFSA's Involvement Policy."

54. Demortain, "Standards of Scientific Advice"; Dreyer and Renn, "EFSA's Involvement Policy."

55. European Commission, *European Governance: A White Paper*, COM(2001) 428.

56. Klintman and Kronsell, "Challenges to Legitimacy in Food Safety Governance?"

57. Budka, "The European Response to BSE."

58. See, for instance, David Burrows, "Can EFSA Ever Cut Ties with Industry?," Food Navigator, May 3, 2017, https://www.foodnavigator.com/Article/2017/05/04/Analysis-Can-EFSA-ever-cut-ties-with-industry. For an account of these criticisms that sees them as an impetus for the EFSA to maintain its scientific integrity, see Kupferschmidt, "Amid Europe's Food Fights, EFSA Keeps Its Eyes on the Evidence."

59. Demortain, "Regulatory Toxicology in Controversy."

60. Dreyer and Renn, "EFSA's Involvement Policy," 332.

61. Moodie and Holst, "For the Sake of Democracy?"

62. Bozzini, *Pesticide Policy and Politics in the European Union*; Horel, *Intoxications. Perturbateurs endocriniens, lobbyistes et eurocrates*. See also chapter 6 of this book.

63. Jasanoff, "Contested Boundaries in Policy-Relevant Science."

64. Studies of the European attempts at public participation in expertise have shown that the potential contradiction in this tension is often resolved by denying public participation the possibility to challenge the framing of what counts as science and what should be discussed in the first place. Wynne, "Public Engagement as a Means of Restoring Public Trust in Science." The conflicted institutionalization of expertise at the EFSA might also be related to the fact that boundary making has to be conducted inside the agency, which is in charge of risk assessment *and* risk management. Dreyer and Renn, "EFSA's Involvement Policy."

65. On the particularities of the EFSA compared to other agencies such as the EMA, see Groenleer, "The Actual Practice of Agency Autonomy"; Demortain, "European Agencies"; Permanand and Vos, "Between Health and the Market."

66. Levidow and Carr, "Europeanizing Advisory Expertise"; Wickson and Wynne, "The Anglerfish Deception."

67. Callon, "Les incertitudes scientifiques et techniques constituent-elles une source possible de renouvellement de la vie démocratique?"; Callon, "Quel rôle pour les sciences sociales face à l'emprise grandissante du régime de l'innovation intensive?"

68. Callon, "How to Design Alternative Markets," 323.

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69. Callon, *L'emprise des marchés*.

70. For use of the narrative of failure of the European biotechnology, see Laurent, "Perfecting European Democracy."

71. Teil, "No Such Thing as Terroir?"

72. Josling, "The War on Terroir." See also Charlier, "La protection européenne des indications géographiques face au principe du traitement national de l'OMC."

73. Josling, "The War on Terroir," 360.

74. Handler, "The WTO Geographical Indications Dispute."

75. Regulations 692/2003 and 510/2006 followed these lines. Sylvander, Lagrange, and Monticelli, "Les signes officiels de qualité et d'origine européene"; Becker and Staus, "European Food Quality Policy."

76. Winickoff et al., "Adjudicating the GM Food Wars."

77. Josling, "A Review of WTO Rules and GMO Trade."

78. Winickoff et al., "Adjudicating the GM food wars." This position was aligned with the American civic epistemology. See Jasanoff, *Designs on Nature*.

79. Kleinman and Kinchy, "Boundaries in Science Policy Making."

80. Council decision of April 25, 1990, concerning the administration of Bovine Somatotrophin (BST), 90/218/EEC.

81. Later, the EC worried about "some aspects of consistency with other community policies," namely the concern that the commercialization of rGBH might contradict the mandate to protect the existing structure of agriculture as embodied in the Common Agricultural Policy. Kleinman and Kleinman, "Boundaries in Science Policy."

82. Ibid., 584.

83. The growing role of scientific argumentation at the WTO can be related to the Agreement on the Application of Sanitary and Phytosanitary Measures, which states that any regulatory decision on these products should be "based on scientific principles and is not maintained without sufficient scientific evidence." Article 2(2) of the agreement, discussed in Majone, "The Precautionary Principle and Its Policy Implications"; Winickoff et al., "Adjudicating the Global Food Wars."

CHAPTER 6

1. For a publication of the conservative think tank American Enterprise Institute, see Marchant and Mossman, *Arbitrary and Capricious*.

2. Vogel, *The Politics of Precaution*.

3. Dratwa, "Taking Risks with the Precautionary Principle."

4. European Commission, 2000 Communication from the Commission on the Precautionary Principle, COM(2000)1.

5. Jasanoff, "Back from the Brink."

6. The multiple references to the "precautionary principle" in European legislation have been reviewed in De Sadeleer, "Le statut juridique du principe de précaution

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en droit communautaire"; Tosun, "How the EU Handles Uncertain Risks." Its use in European courts has been discussed in Stokes, "The EC Courts' Contribution to Refining the Parameters of Precaution."

7. "Chemicals: A Tale of Fear and Lobbying," *International Herald Tribune*, October 27, 2006.

8. I developed the notion of "regulatory precaution" with Henri Boullier and worked on the use of models for the regulation of chemicals with François Thoreau. I participated in expert work at the French Agency for Food, Environmental and Occupational Health and Safety (ANSES) on flame retardants. I use the corresponding empirical material and build on some of the related publications in this chapter.

9. Boullier and Laurent, "La précaution réglementaire."

10. Kjaer, "Rationality within REACH?," 1.

11. Chapter 1, Article 1(3).

12. Marchant and Mossman, *Arbitrary and Capricious*.

13. Hansen, Carlsen, and Tickner, "Chemicals Regulation and Precaution."

14. Regulation (EC) No. 1223/2009 of the European Parliament and of the Council of 30 November 2009 on Cosmetic Products.

15. Regulation (EU) No. 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the Making Available on the Market and Use of Biocidal Products.

16. Regulation (EU) 2015/2283 of the European Parliament and of the Council of 25 November 2015 on novel foods.

17. For certain substances the registration dates differ depending on the quantities concerned. The substances "benefiting from a transitory regime" are those that were already being produced on the European market as of May 1, 2004, or that are listed in the inventory of chemical substances existing on the EC market. For substances not benefiting from the transitory regime, the manufacturer has to supply a technical file containing information on the substance's identity, production, and use as well as a report on its chemical safety.

18. "The Registration Dossier," ECHA, https://echa.europa.eu/regulations/reach/substance-registration/the-registration-dossier.

19. Bensaude-Vincent and Simon, *Chemistry*.

20. European Commission, "Regulatory Aspects of Nanomaterials," COM(2008)0366, 2008.

21. Phone interview, June 2012.

22. Interview with a nanotubes project manager at a French chemicals company, October 2009.

23. "REACH Implementation Project on Nanomaterials," concluding remarks.

24. Jouzel and Lascoumes, "Le règlement REACH."

25. Jasanoff, *The Fifth Branch*.

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26. Boullier, *Toxiques légaux*; Jasanoff, "Epistemic Subsidiarity."

27. Sabel and Zeitlin, *Experimentalist Governance in the European Union*.

28. Decision of the Board of Appeal of the European Chemicals Agency, March 2, 2017, A-011-2014.

29. ECHA, *ECHA Strategy on Substances in Nanoforms*, 48th Meeting of the Management Board, December 14–15, 2017, MB/57/2017 final Brussels, 15.12.2017: 2–3, 2017.

30. The positions of the EEB are presented in "EEB Position Paper on Nanotechnologies and Nanomaterials: Small Scale, Big Promises, Divisive Messages," February 2009. They were described to me in two interviews and during a one-day meeting that I observed in November 2010.

31. European Parliament resolution of April 24, 2009, on regulatory aspects of nanomaterials, 2008/2208(INI), 9.

32. REACH is not applicable to these sectors because they fall under other regulations: REACH, Title I, Chapter 1, Article 2 (5); REACH, Title I, Chap. 1, Article 2 (6).

33. Regulation (EC) No. 1223/2009 of the European Parliament and the European Council of November 30, 2009, on cosmetic products.

34. Ibid., Article 2.1, para. k. In the New Foods regulation and the biocides directive, the definitions introduced by the European Parliament were more complex and were based on criteria containing, inter alia, specific surface area and distribution sizes.

35. Decree No. 2012-232 of February 17, 2012, on the annual declaration on substances at nanoscale in application of Article R. 523-4 of the environment code.

36. As it did so, France took inspiration from a 2011 *communication*, a text published by the EC that does not introduce any legal constraint.

37. If, for instance, companies ensure that the size of the substances they produce is larger than 100nm while still retaining their desired properties. See Laurent, *Democratic Experiments*.

38. Ibid.

39. Nanomaterials are regularly discussed in the press. Their suspected hazards are often mentioned in media accounts, but the technical issues of definition are rarely discussed publicly and remain limited to secluded arenas. Laurent, *Democratic Experiments*.

40. On endocrine disruptors see, for instance, Horel, *Intoxications*.

41. This has been a common trope of the discourse of chemical companies and an object of concern for environmental activists. See Boudia and Jas, *Powerless Science?*

42. 67/548/EEC. The directive was later replaced by Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on Classification, Labelling, and Packaging of Substances and Mixtures. The European Court of Justice had ruled in 1985 that the Dangerous Substances Directive (67/548/EEC) applies only to pure substances, not preparations (mixtures of substances). Thus, additional texts were introduced for preparations.

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43. Article 27 of the directive imposes an obligation on suppliers to provide a material safety data sheet, on paper or electronically, at or before the first delivery of a dangerous substance or preparation. The supplier is also required to inform users of any relevant new information that becomes known. Directive 2001/58/EC provides detailed guidance for the preparation of material safety data sheets. The symbols to use are described in Commission Directive 2001/59/EC of 6 August 2001 Adapting to Technical Progress for the 28th Time Council Directive 67/548/EEC on the Approximation of the Laws, Regulations and Administrative Provisions relating to the Classification, Packaging and Labelling of Dangerous Substances, Annex 1A, "Format of Entries."

44. The 2008 CLP regulation also aligns the European system with the Globally Harmonised System.

45. The European Parliament had proposed that all SVHCs *shall* be listed in the candidate list. This was opposed by the European Council, and the final text states that SVHCs *may* be included in the candidate list. European Parliament Report on the Proposal for a Regulation of the European Parliament and of the Council concerning . . . (REACH), Establishing a European Chemicals Agency, A6-0315/2005 FINAL, Amendments 215 and 216; Council Common Position (EC) No. 17/2006 Adopted by the Council on 27 June 2006 with a View to Adopting Regulation (EC) No. . . . /2006 of the European Parliament and of the Council of . . . concerning . . . (REACH), Establishing a European Chemicals Agency, . . . (2006/C 276 E/01). Quoted in Klika, "Risk and the Precautionary Principle in the Implementation of REACH."

46. Klika, "Risk and the Precautionary Principle in the Implementation of REACH."

47. ChEMTrust et al., "First REACH Hazardous Chemicals List Is a Drop in the Ocean," Brussels, October 22, 2008, cited by Klika, who provides a detailed analysis of how the hazard-based approach becomes risk-based in the regulation of the SVHCs within REACH and concurs with NGOs that this shows that the European regulation does not follow its own stated ambition regarding precaution. Klika, "Risk and the Precautionary Principle in the Implementation of REACH."

48. This section is based on Boullier and Laurent, "La précaution réglementaire." See also the detailed analysis of the authorization procedure in Boullier, *Toxiques légaux*.

49. This had been proposed by Sweden and Austria.

50. Due to the negotiation of potential trade barriers, the argument against protectionism was particularly strong during the negotiation of REACH and excluded imported articles from the authorization procedure. Boullier, *Toxiques légaux*; Boullier and Laurent, "La précaution réglementaire."

51. Question in the European Parliament by Frédérique Ries on January 13, 2011, with a request for a written reply from the EC.

52. Answer given on June 2, 2011, by M. Tajani on behalf of the EC to Frédérique Ries's question.

53. Article 58 §2 of the REACH regulation.

54. European Commission, 2008, EU risk assessment report on DEHP.

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55. Assemblée nationale, 2010, Proposition de loi visant à interdire l'utilisation des phtalates, des parabènes et des alkylphénols, Paris.

56. Examen de la proposition de loi de M. Yvan Lachaud visant à interdire l'utilisation des phtalates, des parabènes et des alkylphénols (no. 2738), Commission des affaires sociales de l'Assemblée nationale, mardi 5 avril 2011.

57. See ANSES, *Evaluation des risques liés à l'exposition aux retardateurs de flamme dans les meubles rembourrés: Partie 1—Efficacité contre le risque d'incendie des retardateurs de flamme dans les meubles rembourrés*, Rapport d'expertise collective, 2014. I participated in this work as a member of an expert working group at ANSES.

58. Commission Regulation (EU) 2017/227 of 9 February 2017 Amending Annex XVII to Regulation (EC) No. 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards bis(pentabromophenyl) ether.

59. The ECHA's Committee for Socio-Economic Analysis and Committee for Risk Assessment had stated this in previous reports about decaBDE. See "RAC and SEAC Opinion on an Annex XV Dossier Proposing Restriction on Bis(pentabromophenyl) Ether (DecaBDE)," 2015.

60. "EEB Reaction to the Commission's Regulation on Flame Retardant decaBDE," February 10, 2017, European Environmental Bureau, https://eeb.org/eeb-reaction-commissions-regulation-flame-retardant-decabde/.

61. At the time, these discussions occurred within the framework of the dangerous substance directive.

62. Eriksson, Karlsson, and Reuter, "Technocracy, Politicization, and Noninvolvement."

63. Ibid.; Løkke, "The Precautionary Principle and Chemicals Regulation."

64. "RAC and SEAC Opinion on an Annex XV Dossier Proposing Restriction on Bis(pentabromophenyl) Ether (DecaBDE)," 2015.

65. See a discussion in Milieu Ltd., the T.M.C. Asser Institute and Pace, *Considerations on the Application of the Precautionary Principle in the Chemicals Sector*, for DG Environment of the European Commission under Study Contract No. ENV.D.3/SER/2010/0083rl, 2011.

66. Quoted in Bozzini, *Pesticide Policy and Politics in the European Union*, 72.

67. Bozzini, *Pesticide Policy and Politics in the European Union*.

68. Regulation (EC) No. 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the Placing of Plant Protection Products on the Market and Repealing Council Directives 79/117/EEC and 91/414/EEC, Annex II.

69. Bozzini, *Pesticide Policy and Politics in the European Union*, 32. The quote, however, is followed by the following considerations: "unless the risk to humans from exposure to that active substance, safener or synergist in a plant protection product, under realistic worst case proposed conditions of use, is negligible, in particular where the product is used in closed systems or in other conditions which aim at excluding contact with humans, and where maximum residue levels of the active substance, safener or synergist concerned in or on food and feed can, taking account

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of the latest opinion of the Authority with respect to that active substance, synergist, safener, be set in accordance with Regulation (EC) No 396/2005, which ensure a high level of consumer protection."

The possibility to still allow for authorization when "exposure is negligible" leaves room for interpretation and has regularly been criticized by environmental organizations for the limitation it could introduce to the hazard-based approach.

70. 2009 Regulation, Annex II, 3.6.5.

71. Horel, *Intoxications*.

72. Instead of one class of CMRs, one could discriminate in various "degrees of magnitude" depending on the dose-effect relationships. Hennes et al., "Incorporating Potency into EU Classification for Carcinogenicity and Reproductive Toxicity." See also Boobis et al., "Classification Schemes for Carcinogenicity Based on Hazard-Identification Have Become Outmoded and Serve neither Science nor Society."

73. Quote from the press release "Commission Presents Scientific Criteria to Identify Endocrine Disruptors in the Pesticides and Biocides Areas," European Commission, June 15, 2016, http://europa.eu/rapid/press-release_IP-16-2152_en.htm.

74. Bozzini, *Pesticide Policy and Politics in the European Union*, 92.

75. Lofstedt, "Risk versus Hazard."

76. Callon, Lascoumes, and Barthe, *Acting in an Uncertain World*.

77. Laurent and Thoreau, "Situated Expert Judgment."

CHAPTER 7

1. Knill and Liefferink, "The Establishment of EU Environmental Policy."

2. Knill and Lehmkuhl, "How Europe Matters."

3. Interview, Paris, December 2018. The name has been changed.

4. Directive 2008/50/EC on ambient air quality and cleaner air for Europe grouped together several directives (Council Directive 1999/30/EC relating to limit values for sulfur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, and lead in ambient air; Directive 2000/69/EC of the European Parliament and the European Council relating to limit values for benzene and carbon monoxide in ambient air; and Directive 2002/3/EC of the European Parliament and the European Council relating to ozone in ambient air). Directive 2004/107/EC of the European Parliament and the European Council relating to arsenic, cadmium, mercury, nickel, and polycyclic aromatic hydrocarbons in ambient air remained a separate text.

5. Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the Reduction of National Emissions of Certain Atmospheric Pollutants, Amending Directive 2003/35/EC and Repealing Directive 2001/81/EC. The pollutants in question are nitrogen oxides, nonmethane volatile organic compounds, sulfur dioxide, ammonia, and fine particulate matter.

6. Court of Justice of the European Union, Press release No. 132/19, Judgment in Case C-636/18 *Commission v France*, Luxembourg, October 24, 2019.

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7. Markowitz and Rosner, "The Limits of Thresholds."

8. "Directive 2017/164/EU—Indicative Occupational Exposure Limit Values," European Agency for Safety and Health at Work, December 3, 2020, https://osha.europa.eu/fr/legislation/directive/directive-2017164eu-indicative-occupational-exposure-limit-values. The occupational environment is regulated by Directive 2017/164/EU on indicative occupational limit values of January 31, 2017, establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU.

9. Henry, *Ignorance scientifique et inaction publique*.

10. Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the Reduction of National Emissions of Certain Atmospheric Pollutants, Amending Directive 2003/35/EC and Repealing Directive 2001/81/EC.

11. Interview, Paris, December 2018.

12. This is a consequence of the fact that environment is a shared competence between the EU and the member states.

13. Ariane Debernardi, "Qualité de l'air: la Commission Européenne poursuit la France en justice," *Libération*, May 17, 2018, https://www.liberation.fr/planete/2018/05/17/qualite-de-l-air-la-commission-europeenne-poursuit-la-france-en-justice_1650709/.

14. For instance, France was condemned by the European Court of Justice only in 2001 for not applying the 1975 Surface Water Directive, in spite of numerous previous warnings by the EC (Case C-266/99), and lost another case on the same topic (CJ-193/12, *Commission v. France*). The conflict was settled only in 2007 as France adopted more constraining measures, and the EC closed its infringement case. "Drinking Water: Commission Welcomes French Compliance with EU Rules on Nitrate Pollution in Brittany," Press release, European Union, June 24, 2010, http://europa.eu/rapid/press-release_IP-10-831_en.htm.

15. Interview, Paris, December 2018.

16. Henry, *Ignorance scientifique et inaction publique*.

17. Previous directives dealt with certain uses of water (drinking, bathing, fishing, etc.) and types of water (surface or underground) and targeted certain pollutants (such as nitrates). Some were included in the WFD, and others remained in place. For a general discussion, see Bouleau, "La gestion française des rivières et ses indicateurs à l'épreuve de la directive cadre."

18. Water Framework Directive (2000/60/EC).

19. Bouleau, "La gestion française des rivières et ses indicateurs à l'épreuve de la directive cadre," 349 (my translation).

20. "Introduction to the EU Water Framework Directive," EC DG Environment, http://ec.europa.eu/environment/water/water-framework/info/intro_en.htm.

21. This grand ambition was the outcome of a lengthy negotiation process and the first (and possibly unexpected) product of the codecision procedure between the European Parliament and the European Council for environmental matters. See

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Bouleau, "La gestion française des rivières et ses indicateurs à l'épreuve de la directive cadre." For a detailed account of the successive versions of the WFD as it circulated between the European Council, the EC and the European Parliament, see Kaika, "The Water Framework Directive."

22. Birk et al., "Three Hundred Ways to Assess Europe's Surface Waters."

23. Hering et al., "The European Water Framework Directive at the Age of 10."

24. Bouleau, "La gestion française des rivières et ses indicateurs à l'épreuve de la directive cadre."

25. Moss, "The Water Framework Directive."

26. Council Directive 75/324/EEC of May 20, 1975, on the approximation of the laws of the member states relating to aerosol dispensers.

27. Baudrin, "Maintenir la technologie aérosol et son industrie."

28. For example, in the case of air quality, see Directive 2015/1480/EC of August 28, 2015, amending several annexes to Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council Laying Down the Rules concerning Reference Methods, Data Validation and Location of Sampling Points for the Assessment of Ambient Air Quality.

29. There are examples of such permits in other domains. Fish quotas, for instance, have been used to manage fish stocks and fight against their depletion. They have been a recurring topic of negotiations among member states and have also been turned into exchangeable entities. Lequesne, "Quota Hopping"; Hoefnagel, de Vos, and Buisman, "Quota Swapping, Relative Stability, and Transparency."

30. The directive included a target share of biofuels, set to account for 10 percent of fuel consumption. Levidow, "EU Criteria for Sustainable Biofuels." The same text also introduced the "sustainability schemes" that I analyzed in chapter 4 to show that they entangle market organization and negotiations involving various actors.

31. On so-called indirect land-use change, see Ahlgren and Di Lucia. "Indirect Land Use Changes of Biofuel Production," 35. It is relatively easy to quantify the amount of carbon emissions resulting from the transformation of a forest into agricultural land (the so-called direct land-use change), but it is much more difficult to quantify the amount of carbon emissions resulting from the fact that turning land used to produce food products into land used to produce biofuel materials will cause some other land to be turned into agricultural land for food production (the indirect land-use change).

32. Mohr and Bausch, "Social Sustainability in Certification Schemes for Biofuel Production," 6.

33. Levidow, "EU Criteria for Sustainable Biofuels."

34. Ibid., 219.

35. That the type of land used to produce biofuels is not a quantified criterion would not change the overall argument of technicization.

36. Council Directive 96/61/EC of September 24, 1996, concerning integrated pollution prevention and control.

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37. For an account of the politics of the negotiations that eventually led to the IPPC Directive, see Héritier, "The Accommodation of Diversity in European Policy-Making and Its Outcomes."

38. Doganova and Karnoe, "Clean and Profitable."

39. Doganova and Laurent, "Keeping Things Different."

40. See European Economic and Social Committee, 2003, Opinion on the Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions—On the Road to Sustainable Production: Progress in Implementing Council Directive 96/61/EC concerning Integrated Pollution Prevention and Control. Quoted in Doganova and Laurent, "Keeping Things Different."

41. Wennerås, *The Enforcement of EC Environmental Law*, 44.

42. Doganova and Laurent, "Keeping Things Different," 150.

43. BREFs were initially only coordination mechanisms, not meant to be constraining. The 2010 IED, in which the IPPC Directive was included, strengthened their status. Article 14(3) of the IED stated that "BAT conclusions shall be the reference for setting the permit conditions." This means that there are indeed thresholds established in each member state. But BATs come first, as thresholds stem from the choice of BATs and the discussions about them.

44. Amec, *Service Contract for Assessing the Potential Emission Reductions Delivered by BAT Conclusions Adopted under the Directive on Industrial emissions (IED)*, Final Report (3rd revision), 2015, CIRCABC, May 2015, https://circabc.europa.eu/sd/a/44aaf4c4-d716-4f02-91ab-a526b07ee6b7/Final%20report_20150501.pdf, 2.

45. Ibid., 2–3.

46. Katoulakis, "Regulatory Effects of Participatory Environmental Networks," 22.

47. Article 13 of the IED asked the EC to set up a "forum for the exchange of information" on industrial emissions. The forum was established by EC Decision 2011/C 146/03 of May 16, 2011.

48. EC Decision 2011/C 146/03 of May 16, 2011, Article 4. This decision also states that "members of the Commission Expert Group 'Information Exchange Forum on Best Available Techniques under legislation on industrial emissions' (E00466) shall automatically be considered as members of the forum."

49. Koutalakis, "Regulatory Effects of Participatory Environmental Networks."

50. Hey, "Balancing Participation in Technical Working Groups."

51. Baya-Laffite, "Black-Boxing Sustainable Development"; Conti et al., "The Industrial Emissions Trend and the Problem of the Implementation of the Industrial Emissions Directive (IED)," 156.

52. Lohse and Sander, "Is the BREF Process a Success or a Failure?"; Hägstrom, "BAT Process Selection and Split Views," quoted in Koutalakis, "Regulatory Effects of Participatory Environmental Networks," 22.

53. López et al., "Integrated Environmental Permit through Best Available Techniques."

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54. Vajda, "The Role of the Industrial Emissions Directive in the European Union and Beyond."

55. Maśnicki, "Decentralized Application of the BAT Conclusions."

56. European Environmental Bureau, "EEB Position Paper on the Directive on Industrial Emissions," 2008.

57. Conti et al., "The Industrial Emissions Trend and the Problem of the Implementation of the Industrial Emissions Directive (IED)," 156.

58. Ibid.

59. Ibid., 153.

60. Amec, *Service Contract for Assessing the Potential Emission Reductions Delivered by BAT Conclusions Adopted under the Directive on Industrial emissions (IED)*, 94

61. Ibid., v–vi.

62. Lefevere, "The EU Greenhouse Gas Emission Allowance Trading Scheme," 82.

63. Geiger et al., *Concerned Markets*.

CHAPTER 8

1. Dinan, "Crises in EU History."

2. Statement of the EU commissioner for health, Stella Kyriakides, quoted in "EU Seeks Greater Public Health Powers after Covid 'Wake-up Call,'" *The Guardian*, November 11, 2020, https://www.theguardian.com/world/2020/nov/11/eu-seeks-greater-public-health-powers-in-wake-of-covid-wake-up-call.

3. Lemoine, "Les valeurs de la dette."

4. Lemoine, "Démocratie des faits ou démocratie défaite?"

5. This chapter is based on research projects I conducted with Basak Sarac on nuclear stress tests and with Basak Sarac and Alexandre Violle on the comparative analysis of the use of stress tests in the nuclear and banking sectors . See Saraç-Lesavre and Laurent, "Stress-Testing Europe"; Laurent, Saraç-Lesavre, and Violle, "Formuler l'action publique en termes de tests."

6. Ezrahi, *The Descent of Icarus*; Shapin and Shaffer, *Leviathan and the Air Pump*.

7. The sociology of testing has analyzed in detail how tests configure the world they are expected to evaluate. See Downer, "When the Chick Hits the Fan"; Pinch, "Testing-One, Two, Three . . . Testing!"

8. Pinch, "Testing-One, Two, Three . . . Testing!"; Downer, "When the Chick Hits the Fan." For the sociology of scientific experiments, see more generally Shapin and Schaffer, *Leviathan and the Air Pump*.

9. Dunbar, *Inventing Money*.

10. Langley, "Anticipating Uncertainty, Reviving Risk?"

11. Ibid.; Violle, "Banking Supervision and the Politics of Verification."

12. The EBA succeeded the Committee of European Banking Supervisors.

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13. Violle, "Constituer un territoire de gouvernement pour la finance."

14. Violle, "Banking Supervision and the Politics of Verification."

15. Power, *The Audit Society*.

16. "Berlakovich Wants Nuclear Power Plants 'Stress Tests,'" *Wiener Zeitung*, March 15, 2011, http://www.wienerzeitung.at/nachrichten/english_news/26454_Berlakovich-wants-nuclear-power-plant-stresstests.html.

17. Felt, "Keeping Technologies Out."

18. For an account in the media, see Bethany Bell, "Austria and Czech Republic Divided over Nuclear Power," BBC News, January 4, 2012, https://www.bbc.co.uk/news/world-europe-16359991.

19. "Berlakovich Wants Nuclear Power Plants 'Stress Tests.'"

20. "Fukushima Has Made Me Start to Doubt," *Der Spiegel*, April 4, 2011, http://www.spiegel.de/international/europe/spiegel-interview-with-energy-commissioner-oettinger-fukushima-has-made-me-start-to-doubt-a-754888.html.

21. Langley, "Anticipating Uncertainty, Reviving Risk?"

22. Anderson, "Stress Testing and Macroprudential Regulation," 8. Writing scenarios is sensitive, since including an adverse event in a scenario is an implicit recognition that this event *might* occur in the future. Yet the stability of financial markets also rests on assumptions about which events might occur and which are unthinkable. Thus, including in a scenario the possibility for a Eurozone country to default on its sovereign debt would be interpreted as a recognition that such an eventuality *could* possibly happen. This proved to be a problematic issue for the European stress tests conducted in 2010 and 2011 in the throes of the financial crisis.

23. Council of the European Union, *Report of the Ad Hoc Group on Nuclear Security* (Brussels: Council of the European Union, 2012).

24. See the press release at European Greens, "Today, the EGP launches an immediate online campaign on nuclear stress tests in Europe . . . ," April 2011, https://europeangreens.eu/news/website-launched-against-fake-nuclear-stress-tests-europe.

25. Baud and Chiapello, "Understanding the Disciplinary Aspects of Neoliberal Regulations," 19.

26. More precisely of the European Systemic Risk Board, which is housed within the ECB and was created in 2010 as a response to the financial crisis.

27. European Systematic Risk Board, "EBA/SSM Stress Test: The Macroeconomic Adverse Scenario," European Banking Authority, April 17, 2014, https://www.eba.europa.eu/sites/default/documents/files/documents/10180/669262/99785082-e066-48d0-85d5-369423046394/2014-04-29_ESRB_Adverse_macroeconomic_scenario_-_specification_and_results_finall_version.pdf?retry=1.

28. Olivier Berruyer, "La vaste blague des Stress tests de la BCE . . ." ["ECB's Stress Tests Are a Joke," Les Crises, October 27, 2014, https://www.les-crises.fr/la-vaste-blague-des-stress-tests-de-la-bce/.

29. See V. Acharya, L. Pedersen, T. Philippon, and M. Richardson, "Measuring Systemic Risk," New York University working paper, 2010; V. Acharya, R. Engle, and M.

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Richardson, "Capital Shortfall: A New Approach to Ranking and Regulating Systemic Risks," American Economic Association meeting, Janvier, 2012; V. Acharya, R. Engle, and D. Pierret, "Testing Macroprudential Stress Tests: The Risk of Regulatory Risk Weights," SSRN, April 4, 2013, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2245211; C. Brownlees and R. Engle, "Volatility Correlation and Tails for Systemic Risk Measurement," New York University working paper, 2012.

30. Such as Viral Acharya, Sascha Steffen, Robert Engle, Matthew Richardson, Christian Brownlees, and Thomas Philippon. Robert Engle was awarded the Nobel Memorial Prize in Economic Sciences in 2003, and Viral Acharya became deputy governor of the Reserve Bank of India in January 2017.

31. Alexander Glaser, "From Brokdorf to Fukushima: The Long Journey to Nuclear Phase-out"; Jahn and Korolczuk, "German Exceptionalism."

32. See, e.g., "Wähler strafen Union für Atomkurs ab," *Der Spiegel*, March 23, 2011, http://www.spiegel.de/politik/deutschland/umfrage-waehler-strafen-union-fuer-atomkurs-ab-a-752631.html.

33. In France, for instance, see *L'avenir de la filière nucléaire en France: Rapport de l'OPECST*, OPECST, 2011, and particularly the concluding words of Christian Bataille, member of the French parliament, "*choix politique a priori"* (political as opposed to the rational decision). Anne Lauvergeon, then CEO of Areva, was quoted in "Auch Frankreichs mächtigste Atom-Managerin, Anne Lauvergeon, bezeichnete den deutschen Atomausstieg als 'vollkommen politische Entscheidung,'" *Die Zeit*, https://www.zeit.de/politik/ausland/2011-05/atomausstieg-reaktionen-ausland.

34. Antonia Wenisch and Oda Becker, "Critical Review of the EU Stress Tests," Study commissioned by Greenpeace, May 2012, 8.

35. On the varieties of narratives of the Fukushima crisis, see Guarnieri and Travadel, *Un récit de Fukushima*; Hermwille, "The Role of Narratives in Socio-Technical Transitions"; Jones, Loh, and Satō, "Narrating Fukushima."

36. "Barroso: EU Nuclear Safety Test Must Cover 'Man-made' Events," EUBusiness, May 11, 2011.

37. "Europe Divided over Nuclear Power after Fukushima Disaster," *The Guardian*, May 25, 2011.

38. "Deux mois et demi pour les stress tests européens ne serait pas admissible," Euractiv, May 25, 2011.

39. This was reported by Bloomberg in 2011 and quoted in an online publication of Wise International to point to what critics saw as the narrow definition of stress tests' scenarios. See "No Fake Stress Test!," *Nuclear Monitor*, May 13, 2011, https://www.wiseinternational.org/nuclear-monitor/726/no-fake-stress-test.

40. WENRA, "First Proposal about European Stress Tests on Nuclear Power Plants," 2011 (my emphasis).

41. Interview conducted by Alexandre Violle, March 23, 2017.

42. Ibid.

43. Curtin, "Challenging Executive Dominance in European Democracy."

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44. Crum, "Saving the Euro at the Cost of Democracy?"

45. This is a provision of the Single Supervisory Mechanism. See Violle, "Constituer un territoire de gouvernement pour la finance." The description of the European response to the financial crisis in terms of centralization and extension of the European executive power has been nuanced by scholars studying European "experimental governance." Zeitlin, "EU Experimentalist Governance in Times of Crisis."

46. Presentation delivered before a group of French civil servants on January 10, 2018.

47. Robert, "Les groupes d'experts dans le gouvernement de l'Union européenne"; Vos, "The Rise of Committees."

48. Gunther Oettinger witnessing before the European Parliament on stress tests of nuclear power plants in the EU and nuclear safety in EU neighboring countries, debate, June 9, 2011, EU Parliament, Strasbourg.

49. ENSREG, *Declaration of ENSREG, Annex I EU "Stress Tests" Specifications*, 2011.

50. Experts from non–member states who agreed to stress tests (namely Ukraine and Switzerland) were also part of the peer-review teams.

51. Gornitzka and Sverdrup, "Who Consults?"

52. During an interview with a nuclear expert from Greenpeace, March 23, 2017, Brussels.

53. A channel that a Greenpeace nuclear specialist saw as very limited, barely compensating for what he thought were strong pronuclear biases in other delegations:

> There was a 10 days peer-review session in Luxembourg with doors-locked, and there were only one person with insight from outside the nuclear industry. From the civil society, it was only a former campaigner for Greenpeace who was included in the process. He was the only [person[in Luxembourg that came with that background. He was part of the Austrian delegation. The only delegation that picked up on the suggestion of the European Commission that it would be good to have more stakeholders involved. . . . The Commission saw that it made sense. . . . but there was so much infighting within the national regulators about who will go in there. Helmut Hirsch was balanced out for instance by Attila Aszodi. I would call him Mr. Nuclear in Hungary. (Interview, Brussels, March 23, 2017)

54. ENSREG, *Practical Organisation of Peer Reviews of the "Stress Tests" of European NPP's*, 2011.

55. Ibid. A board was put in place to supervise the whole peer-review process. The board comprised a chairperson for the entire process (France); a vice chairman (Spain); a full-time project manager ensuring adequate coordination of activities (Czech Republic); three team leaders of "topical reviews," that is, specific topics of inquiry for member states to work on (United Kingdom, Sweden, and the Slovak Republic); a representative of a nonnuclear member state (Austria); and a representative of the EC.

56. Danièle Nouy, "Toward the European Banking Union: Achievements and Challenges," OeNB Economics Conference, Vienna, May 12, 2014, https://www.bankingsupervision.europa.eu/press/speeches/date/2014/html/se140512_1.en.html.

57. Hilgartner, *Science on Stage*, On economic matters, see Grossman, Luque, and Muniesa, "Economies through Transparency."

58. Caporale and Cipollini, "The Euro and Monetary Policy Transparency."

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59. Interview conducted by Alexandre Violle, May 12, 2016.

60. Violle, "Banking Supervision and the Politics of Verification."

61. The evaluation reveals a €25 billion deficit for 25 banks (of the 139 subjected to stress tests). Since many of those 25 banks had anticipated recapitalization measures, only 8 of them were asked to use €8 billion in equity.

62. ENSREG, *Peer-Review Report: Stress Tests Performed on European Nuclear Power Plants*, 2012.

63. "Stress tests and Peer Review Process," Joint statement of ENSREG and the EC, April 26, 2012.

64. See, e.g., Becker and Lorenz, *Four Years after Fukushima*; Becker and Lorenz, *Critical Review of the Updated National Action Plans (NAcP) of the EU Stress Tests on Nuclear Power Plants*.

65. For instance, the 2009 Nuclear Directive stated that "the self-assessments followed by international peer reviews are neither an inspection nor an audit, but a mutual learning mechanism that accepts different approaches to the organisation and practices of a competent regulatory authority, while considering regulatory, technical and policy issues of a Member State that contribute to ensuring a strong nuclear safety regime . . . with the aim of continuously improving nuclear safety." Council Directive 2009/71/EURATOM of June 25, 2009, establishing an EC framework for the nuclear safety of nuclear installations.

66. European Banking Authority, *2016 EU Wide Stress Test Results*, July 29, 2016.

67. They were used to collect information for inclusion in the ECB's monitoring system, known as the Supervisory Review and Evaluation Process, which is intended to identify banks' annual need for equity.

68. Council Directive 2014/87/Euratom of July 8, 2014, amending Directive 2009/71/Euratom establishing an EC framework for the nuclear safety of nuclear installations.

69. "In view of the technical progress achieved through the provisions of the IAEA and by the Western European Nuclear Regulators Association ('WENRA') and responding to the lessons learnt from the stress tests and the Fukushima nuclear accident investigations, Directive 2009/71/Euratom should be amended to include a high level Community nuclear safety objective covering all stages of the lifecycle of nuclear installations (siting, design, construction, commissioning, operation, decommissioning). In particular, this objective calls for significant safety enhancements in the design of new reactors for which the state of the art knowledge and technology should be used, taking into account the latest international safety requirements." Council Directive 2014/87/Euratom.

70. Ibid.

71. Council Directive 2009/71/EURATOM of June 25, 2009, establishing an EC framework for the nuclear safety of nuclear installations.

72. WENRA, *Report: Topical Peer Review 2017; Ageing Management Technical Specification for the National Assessment Reports*, RHWG Report to WENRA, December 21, 2016.

73. Interview conducted by Basak Sarac, Brussels, March 23, 2017.

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CONCLUSION

1. Joerges, "Europe's Economic Constitution in Crisis and the Emergence of a New Constitutional Constellation," 986.

2. See Gerber, "Constitutionalizing the Economy."

3. Azoulai, "Constitution économique et citoyenneté de l'Union Européenne." See also Reich, "A European Constitution for Citizens."

4. Azoulai, "Constitution économique et citoyenneté de l'Union Européenne," 547 (my translation).

5. One of the most famous cases is Case C-113/89 *Rush Portuguesa Lda v. Office national d'immigration*. See Davies, "Posted Workers."

6. Kilpatrick, "Laval's Regulatory Conundrum."

7. Barnard, "'British Jobs for British Workers,'" 258.

8. Kilpatrick, "Laval's Regulatory Conundrum," 4.

9. The convergence of national labor policies is an explicit objective of the posted workers directives. Barnard, "'British Jobs for British Workers.'"

10. Joerges, "What Is Left of the European Economic Constitution."

11. Ibid., 19.

12. The open method of coordination has been the topic of numerous scholarly works. For a review, see Borrás and Jacobsson, "The Open Method of Co-ordination and New Governance Patterns in the EU." For a critical discussion, see Bruno, "The 'Indefinite Discipline' of Competitiveness Benchmarking as a Neoliberal Technology of Government."

13. Jasanoff, "Constitutional Moments in Governing Science and Technology."

14. Joerges, "What Is left of the European Economic Constitution," 36.

15. RRI has been discussed in a growing set of literature. For a genealogy and a critical analysis, see De Saille, "Innovating Innovation Policy." RRI built on previous nanotechnology programs to propose a vision of joint democratic and scientific progress. See Laurent, "Perfecting European Democracy." One can situate RRI within the more general evolution of how European science policies envision the relationships between science and its publics. See Felt, "Vers la construction d'un public européen?"

16. Bowman and Van Calster, "Reflecting on REACH," 375.

17. Marres, *Material Participation*.

18. For a discussion, see Laurent, "An Experimental Democratic Theory."

19. Latour, "Why Has Critique Run out of Steam?"

20. Geiger et al., *Concerned Markets*.

21. Théret and Kalinowski, "De la monnaie unique à la monnaie commune, pour un fédéralisme monétaire européen."

22. Miller, "Hybrid Management."

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23. Beck, "Moving beyond the Linear Model of Expertise?"

24. Grundmann, "'Climategate' and the Scientific Ethos."

25. Leiserowitz et al., "Climategate, Public Opinion, and the Loss of Trust."

26. Jasanoff, "A New Climate for Society."

27. For a comparison between the financial and migrant crises, see Schimmelfennig, "European Integration (Theory) in Times of Crisis."

28. Pelizza, "Processing Alterity, Enacting Europe."

29. Nikolaj Nielsen, "New EU Border Agency to Stress Test Member States," EUObserver, July 11, 2016, https://euobserver.com/migration/134303.

30. "A Europe Closer to Citizens: The Urban and Territorial Dimension of Cohesion Policy Post-2020," Conference at the European Parliament, Brussels, September 4, 2018, European Union, http://www.eu-about.eu/index.php/en/events/220-a-europe-closer-to-citizens-the-urban-and-territorial-dimension-of-cohesion-policy-post-2020.

31. Badouard, "Combining Inclusion with Impact on the Decision?"

32. Majone, "The Rise of the Regulatory State in Europe."

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